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About Xilinx

As the programmable logic industry leader, Xilinx continues to introduce new products at an unprecedented rate. Our products receive overwhelming acceptance in the market from designers like you. This brisk pace of new product development helps explain why programmable logic ran a close second to Flash memory last year, as the fastest growing sector of the world semiconductor industry.

Whether using the new high-performance Xilinx Virtex™-II FPGAs, the affordable Spartan™-II FPGAs, the XC9500™ CPLDs, or the ultra-low-power CoolRunner™ CPLDs, these advanced programmable logic devices help minimize design risk and get your products to market faster.

Xilinx also continues to make significant advances in software technologies. The latest versions of the Xilinx Alliance Series™ and Foundation Series™ development tools (3.1i) offer new levels of productivity with the industry's fastest place-and-route times and major improvements in quality of results. Now, you can compile hundred-thousand gate Spartan-II designs in just three minutes, or compile million-gate Virtex designs in just 30 minutes — Xilinx continues to improve the performance of these tools.

Along with our development tools, Xilinx and its partners offer you a broad and constantly growing assortment of Intellectual property (cores). These predefined and pre-tested system functions, ranging from DSP functions and codecs to fast PCI interfaces, help you significantly reduce your design schedules. Because our FPGAs now offer millions of system gates, intellectual property is a very important part of your strategy for reducing your product development cycles.

In the near future, you can expect to see even more breakthrough products from Xilinx, such as FPGAs with embedded PowerPC processors, FPGAs that support superfast serial I/O standards such as RocketI/O technology, and development tools for co-verification of software and hardware designs. In addition, we are rapidly building a library of comprehensive reference designs that show you how to interface Xilinx FPGAs and CPLDs to other leading devices that you may need to complete your design.

Operations

As a "fabless" supplier, Xilinx partners with leading semiconductor manufacturers, such as UMC Group in Taiwan and Seiko Epson in Japan, through close business relationships or equity positions in their factories. This strategy allows Xilinx to focus on designing new product architectures, software tools, and cores, while having access to the most advanced semiconductor process technologies. Today, Xilinx is producing programmable logic devices using state-of-the-art 0.12μ and 0.15μ copper-interconnect process technology.

Xilinx has manufacturing operations in San Jose, California and Dublin, Ireland, for product design, software development, final testing, and quality analysis. We also have facilities in Boulder, Colorado, where much of our software development takes place, and in Albuquerque, New Mexico, where we develop the CoolRunner CPLDs.

Introducing the Xilinx 2001 Data Book

This Data Book contains only the most recent information on our newer products, the products that we recommend for new designs. However, because this information is constantly being updated as products change and mature, your best source of the most current information is on our website. To find the latest technical product data from Xilinx, simply go to the following Web address:

www.xilinx.com/partinfo/databook.htm

Data Book CD-ROM

Over the last few years, Xilinx has introduced a record number of new products, and today Xilinx has the largest product portfolio in the programmable logic industry. As a result, the number of new Xilinx devices and software products continues to grow steadily — and it is impractical to fit complete data sheets on all Xilinx products physically into a single usable volume.

Rather than publishing multiple printed volumes, we provide the Xilinx DataSource CD-ROM. The CD-ROM contains complete data sheets on all Xilinx products currently in production, as well as all application notes and other technical documentation. This DataSource CD-ROM is published four times a year.

To access any document on the DataSource CD-ROM, open the **databook.pdf** table of contents file and select the desired product specification. This opens the complete product specification in Adobe Acrobat Reader. If you do not have Adobe Acrobat Reader installed on your computer, we have provided an installable version on the DataSource CD-ROM.

Registration Advantage

Please take a moment to complete the registration section on the CD-ROM. As a regular customer, you will receive the next updated DataSource CD-ROM free of charge and without any other action required on your part.

Data Sheet Categories

To provide the most up-to-date information, some component products included in this book might not have been fully characterized at the time of publication. In these cases, the AC and DC characteristics included in the data sheets are marked as "Advance" or "Preliminary" information. (Notwithstanding the definitions of such terms, all specifications

are subject to change without notice.) These designations have the following meaning:

- **Advance** — Initial estimates based on simulation or extrapolation from other speed grades, devices, or device families. Use as estimates, but not for final production.
- **Preliminary** — Based on preliminary characterization. Changes are possible, but not expected.
- **Final** (unmarked) — Specifications not identified as either Advance or Preliminary are to be considered final.

About This DataSource CD-ROM

This DataSource CD-ROM contains complete data sheets, application notes, white papers, IBIS files, BSDL files and other technical information. This version contains descriptions for the following Xilinx product lines:

Platform FPGAs

The Virtex-II solution is the first embodiment of the Platform FPGA, once again setting a new benchmark in performance, while offering a feature set that is unparalleled in the industry. With densities ranging from 40,000 up to 10 million system gates, the Platform FPGA delivers SystemI/O™ interfaces to bridge emerging standards, XtremeDSP™ for unprecedented DSP performance (up to 100 times faster than the leading DSP processor), and will offer Empower!™ processor technology for flexible high-performance system processing needs. Xilinx Platform FPGAs provide the system capability to integrate a variety of soft IP and embedded hard IP cores, such as processors and Gigabit serial I/Os. Additionally, significant new capabilities have been added to Virtex-II, such as the XCITE signal integrity-enhancing feature and the Digital Clock Manager (DCM) flexible system clock management.

Spartan Series FPGAs

Spartan FPGAs are targeted as gate-array replacements for low-cost, high-volume designs under 200,000 system gates, where the on-chip RAM and predefined software cores can be a huge advantage. Spartan devices are optimized for low cost and are available in 5V, 3.3V, and 2.5V versions. The latest Spartan-II family offers Virtex-like features such as digital delay-locked loops, programmable I/O, and on-chip block memory.

The Spartan series is the first that meets all of the key cost, feature, and performance criteria to realistically replace mask-programmed gate arrays in production; the Spartan series provides FPGA flexibility at ASIC prices. Spartan FPGAs avoid the initial cost, lengthy development cycles, and inherent risk of conventional ASICs, and their programmability permits design upgrades in the field without hardware replacement (inherently impossible with ASICs).

CoolRunner CPLDs

CoolRunner CPLDs are the first to combine very low power with high speed, high density, and high I/O counts, in a single device. Xilinx CoolRunner CPLDs feature Fast Zero Power™ technology, drawing virtually no power when idle.

CoolRunner CPLDs are ideal for battery-operated portable electronic equipment such as laptop PCs, telephone handsets, personal digital assistants, and electronic games. These CPLDs also use far less dynamic power during actual operation compared to conventional CPLDs, an important feature for high performance, heat sensitive equipment such as telecom switches, video conferencing systems, simulators, high-end testers, and emulators. The entire series is available in densities ranging from 32 to 512 macrocells.

XC9500 CPLDs

The XC9500™ CPLDs from Xilinx are based upon an advanced architecture that combines system flexibility and low cost to allow for faster time-to-market and lower manufacturing and support costs. Ranging in density from 36 to 288 macrocells, they are available in 5V, 3.3V, and 2.5V versions. Targeted for leading-edge systems that require rapid design development, longer system life, and robust field upgrade capability, this series provides unparalleled performance along with the highest programming reliability and ease-of-use. In addition, XC9500 CPLDs easily complement our higher density FPGAs, giving you a comprehensive, seamless logic solution.

QPro

QPro™ devices from Xilinx are targeted at high-reliability applications for the defense and aerospace markets. These devices are used in a wide range of applications such as electronic warfare, missile guidance and targeting, radar, sonar, communications, signal processing, avionics, and satellites. The Xilinx QPro family of ceramic and plastic QML products (Qualified Manufacturers Listing), certified to MIL-PRF-38585, provide system designers with advanced programmable logic solutions for next generation designs. The QPro family also includes select products that are radiation hardened for use in satellite and other space applications.

The Xilinx QPro family addresses the issues that are critical to the aerospace and defense market: QML/best commercial practices; performance-based solutions, including cost-effective plastic packages; reliability of supply; controlled mask sets; and off-the-shelf ASIC-replacement solutions that require no custom logic.

Global Services

The Xilinx Global Services organization provides customers with Support, Education, and Design Services plus an automated Web-based knowledge base at support.xilinx.com.

Support Services

The support.xilinx.com website is the Xilinx online community for designers. The site provides a single, 24-hours a day location for designers to expand their knowledge about Xilinx products. The site features an answers database with more than 4,000 unique design tips, techniques, and application notes; interactive forums that allow designers to trade information with their peers; and problem solvers that automatically step customers through the debugging process.

Xilinx augments these services with a team of 300 field application engineers throughout North America, Europe, and Asia who provide on-site answers and consulting services for customers. FAEs, both from Xilinx and the company's independent sales organizations, are experts in electronic design. They also offer design evaluation of new projects and close consultation through the design process.

Platinum Technical Services

Xilinx Support Services now makes Platinum Technical Service available to our customers. Platinum Technical Service allows you to increase your engineering productivity and get your products to market faster. As a Platinum Technical Service customer you receive access to a dedicated toll-free number (available in North America only) that puts you in direct contact with our Senior Application Engineers. Platinum also provides you with ten education credits, proactive status updates, priority case resolution, and 2X the number of application engineers per customer as our Gold level service. (Gold is the standard level of service that we provide.) To sign up for Platinum Technical Service call us at **1-800-888 FPGA** (3742) or email us at fpga@xilinx.com.

Education Services

Xilinx Education Services offers customers a variety of options for in-depth training in the company's programmable logic solutions. These include classes such as PCI, advanced FPGA design, and FPGAs for ASIC designers with courses hosted at Xilinx offices worldwide or on a customer's premises. Customers also can choose a live e-Learning system, which provides scheduled live classes over the Web for novices and experts with over 70 modules available to choose from. For a list of courses and a schedule, go to support.xilinx.com and select the Education tab.

Design Services

Xilinx Design Services brings together the activities of system design, programmable logic design, and embedded software development to help customers accelerate product development. Xilinx expert designers can help customers with traditional FPGA designs as well as those planned for the next generation of Platform FPGAs. Xilinx Design Services also provides expertise in the wide variety of IP cores available from Xilinx and its partners, and for specific applications that range from telecommunications and data communications to digital TV.

Xilinx Internet-Enabled Software Solutions

At Xilinx, software tools are a key part of our programmable logic solutions. Since its inception, Xilinx has shipped more than 60,000 development systems to customers worldwide. Today, Xilinx offers several software solutions that are Internet-enabled. These tools allow designers instant and direct access to the technical support area of the Xilinx website.

Xilinx design tools also are the fastest in the industry. With the latest version 3.1i release, Xilinx place-and-route times are as fast as two minutes for a 200,000 gate Spartan-II device, and 30 minutes for a one-million gate Virtex-E device.

Alliance Series

Through its Alliance Series™ software, Xilinx has chosen an open systems approach that allows customers to use familiar front-end design creation, synthesis, and verification tools from leading independent electronic design automation (EDA) software developers. Those include Aldec, Cadence, Data I/O, Exemplar, Mentor Graphics, Model Technology, OrCAD, Synopsys, Synplicity, Veribest, and Viewlogic. Close and longstanding engineering relationships have led to the creation of complementary technology that tightly integrates third-party tools from those suppliers with the back-end software from Xilinx that places-and-routes logic designs in its FPGAs and CPLDs.

Foundation Series

The Foundation Series™ software is a family of fully integrated, ready-to-use tools for the Windows NT and Windows 95 PC operating systems that support all Xilinx FPGAs and CPLDs. Available at low prices, and targeted at entry-level as well as high end users, the Foundation Series products leverage industry standard hardware description languages (HDLs) including Verilog/VHDL. The Windows-based Foundation Series software provides access to synthesis, schematic entry, gate-level simulation, and implementation tools. Since Foundation Series tools are integrated into a common design management environment, users have access to all technology from design entry and implementation to verification in a single software package.

WebFITTER

WebFITTER™ is an online design tool that accepts HDL, ABEL, or netlist files and provides all reports, simulation models, programming files, along with price quotes. This online design tool now has a new and improved look and feel with enhanced features, a more flexible design flow, and support for all Xilinx XC9500 and CoolRunner devices.

WebPACK ISE

WebPACK™ ISE (the latest downloadable desktop solution from Xilinx) is a collection of free PLD software modules that includes HDL and ABEL, synthesis, simulation and test-bench generation, schematic and graphical state diagram entry, device fitting, and JTAG programming. WebPACK ISE supports the XC9500 and CoolRunner CPLD product lines as well as the Virtex XCV300E and the complete Spartan-II FPGA family.

Intellectual Property Library Solutions

Today, more than 250 different predefined cores are available to implement system-level functions directly in Xilinx programmable logic devices. This intellectual property, available from Xilinx and third-party partners, allows designers to cut design time and significantly reduce risk while having access to the best performing and lowest cost components available. Full information about Xilinx cores is available on-line at:

www.xilinx.com/ipcenter

LogiCORE

LogiCORE™ products are sold and supported directly by Xilinx and include system interfaces, such as PCI and POS-PHY, digital signal processing (DSP) algorithms such as filters, FFTs, and forward error correction cores, and a number of other modules such as adders, multipliers, and look-up tables.

AllianceCORE

AllianceCORE™ modules are sold and supported by a network of third-party developers and are optimized for Xilinx devices. Current AllianceCORE products range from processors and standard peripheral controllers to ATM functions.

CORE Generator

The CORE Generator™ tool from Xilinx delivers highly optimized cores that are compatible with standard design methodologies for Xilinx FPGAs. This easy-to-use tool generates flexible, high-performance cores with a high degree of predictability, and allows customers to download future core offerings from the Xilinx website. Both Xilinx and independent IP developers can design cores for the CORE Generator tool, which also serves as a cataloging and delivery system for related collateral for all designers using Xilinx. In addition, customers can use the CORE Generator as a platform to develop an internal design reuse methodology for intellectual property developed for Xilinx programmable logic devices.

System Generator

The Xilinx System Generator bridges the gap between your conceptual architectural design and the actual implementation in a Xilinx FPGA. The System Generator for Simulink, developed in partnership with The MathWorks, Inc., enables designers to develop high-performance DSP systems for Xilinx FPGAs. The System Generator uses the popular MATHLAB/Simulink products from The MathWorks, Inc.

eSP (Emerging Standards and Protocols)

eSP is the industry's first web portal dedicated to accelerating all phases of product development for products based upon emerging standards and protocols. Specifically focused on the consumer digital convergence technologies, the eSP portal shortens the product development cycle and reduces the risk by providing a resource that is rich in technical content. The eSP portal provides solutions and updates on specifications that aid product development and avoid product obsolescence. Solutions found on the site

range from reference designs to intellectual property and result from collaboration with a wide range of industry leaders. The site is also a rich source of information including technology tutorials, market overviews, system block diagrams, white papers, standards updates, industry links, extensive glossaries, and a directory of consultants. Additionally, there is an online forum that provides designers with direct access to industry experts.

<http://www.xilinx.com/esp/esp.htm>

Xilinx Online Field Upgradable Systems

Updating a system's software over a network has been a common practice for many years. Xilinx is now enabling the updating of a system's hardware via a network through use of Internet Reconfigurable Logic (IRL™) design methodology. The elements that make up IRL are Xilinx products, design guidelines and reference platforms. These elements help hardware and software developer's to specify, design and validate a project's IRL enabled hardware. Xilinx is both creating these elements as well as partnering with companies to enable a system level solution. The Xilinx PAVE (PLD API for VxWorks Embedded systems) interface was created with Wind River Systems for the purpose of managing Xilinx PLDs using a C++ application in a Tornado/VxWorks environment. Products benefiting from IRL technology range from cellular base stations to settop boxes.

Design Consultants

The Xilinx XPERTS Program qualifies, develops, and supports design consultants, ensuring that they have superior design skills and the ability to work successfully with customers. XPERTS is a worldwide program that allows easy access to certified experts in Xilinx device architectures, software tools, and cores. XPERTS partners also offer consulting in the areas of HDL synthesis and verification, customization and integration, system-level designs, and team-based design techniques. A listing of partners in the Xilinx XPERTS program is located on the Web at:

www.xilinx.com/ipcenter

Feedback

We welcome any comments or suggestions you have about the Xilinx Data Book—whether it's the CD-ROM or web version. You can send your feedback by e-mail to:

Databook@xilinx.com

Platform FPGA Products Selection Guide

Virtex-II Products

Table 1: Virtex-II Product Selection Guide

Virtex-II Part No.	Volt.	Spd. Grd.	Pkg. Type	No. of Pins	Temp. Range	Sys. Gates	Avail. I/O	Max. Avail. I/O	(CLB) No. of Slices	(CLB) No. of LUTs	(CLB) Max Dist. RAM Bits	(CLB) No. of Flip-Flops	Multiplier Blks.	Select RAM 18-Kb Blks.	Select RAM Max. RAM (Kbits)	DCMs	Sup. Single Ended I/O Stds.	Sup. Diff. Signal I/O Stds.
XC2V40-4CS144C	1.5V	4	CSP	144	Com.	40K	88	88	256	512	8,192	512	4	4	72	4	19	8
XC2V40-4CS144I	1.5V	4	CSP	144	Ind.	40K	88	88	256	512	8,192	512	4	4	72	4	19	8
XC2V40-5CS144C	1.5V	5	CSP	144	Com.	40K	88	88	256	512	8,192	512	4	4	72	4	19	8
XC2V40-5CS144I	1.5V	5	CSP	144	Ind.	40K	88	88	256	512	8,192	512	4	4	72	4	19	8
XC2V40-6CS144C	1.5V	6	CSP	144	Com.	40K	88	88	256	512	8,192	512	4	4	72	4	19	8
XC2V40-4FG256C	1.5V	4	FBGA	256	Com.	40K	88	88	256	512	8,192	512	4	4	72	4	19	8
XC2V40-4FG256I	1.5V	4	FBGA	256	Ind.	40K	88	88	256	512	8,192	512	4	4	72	4	19	8
XC2V40-5FG256C	1.5V	5	FBGA	256	Com.	40K	88	88	256	512	8,192	512	4	4	72	4	19	8
XC2V40-5FG256I	1.5V	5	FBGA	256	Ind.	40K	88	88	256	512	8,192	512	4	4	72	4	19	8
XC2V40-6FG256C	1.5V	6	FBGA	256	Com.	40K	88	88	256	512	8,192	512	4	4	72	4	19	8
XC2V80-4CS144C	1.5V	4	CSP	144	Com.	80K	92	120	512	1,024	16,384	1,024	8	8	144	4	19	8
XC2V80-4CS144I	1.5V	4	CSP	144	Ind.	80K	92	120	512	1,024	16,384	1,024	8	8	144	4	19	8
XC2V80-5CS144C	1.5V	5	CSP	144	Com.	80K	92	120	512	1,024	16,384	1,024	8	8	144	4	19	8
XC2V80-5CS144I	1.5V	5	CSP	144	Ind.	80K	92	120	512	1,024	16,384	1,024	8	8	144	4	19	8
XC2V80-6CS144C	1.5V	6	CSP	144	Com.	80K	92	120	512	1,024	16,384	1,024	8	8	144	4	19	8
XC2V80-4FG256C	1.5V	4	FBGA	256	Com.	80K	120	120	512	1,024	16,384	1,024	8	8	144	4	19	8
XC2V80-4FG256I	1.5V	4	FBGA	256	Ind.	80K	120	120	512	1,024	16,384	1,024	8	8	144	4	19	8
XC2V80-5FG256C	1.5V	5	FBGA	256	Com.	80K	120	120	512	1,024	16,384	1,024	8	8	144	4	19	8
XC2V80-5FG256I	1.5V	5	FBGA	256	Ind.	80K	120	120	512	1,024	16,384	1,024	8	8	144	4	19	8
XC2V80-6FG256C	1.5V	6	FBGA	256	Com.	80K	120	120	512	1,024	16,384	1,024	8	8	144	4	19	8
XC2V250-4CS144C	1.5V	4	CSP	144	Com.	250K	92	200	1,536	3,072	49,152	3,072	24	24	432	8	19	8
XC2V250-4CS144I	1.5V	4	CSP	144	Ind.	250K	92	200	1,536	3,072	49,152	3,072	24	24	432	8	19	8
XC2V250-5CS144C	1.5V	5	CSP	144	Com.	250K	92	200	1,536	3,072	49,152	3,072	24	24	432	8	19	8
XC2V250-5CS144I	1.5V	5	CSP	144	Ind.	250K	92	200	1,536	3,072	49,152	3,072	24	24	432	8	19	8
XC2V250-6CS144C	1.5V	6	CSP	144	Com.	250K	92	200	1,536	3,072	49,152	3,072	24	24	432	8	19	8
XC2V250-4FG256C	1.5V	4	FBGA	256	Com.	250K	172	200	1,536	3,072	49,152	3,072	24	24	432	8	19	8
XC2V250-4FG256I	1.5V	4	FBGA	256	Ind.	250K	172	200	1,536	3,072	49,152	3,072	24	24	432	8	19	8
XC2V250-5FG256C	1.5V	5	FBGA	256	Com.	250K	172	200	1,536	3,072	49,152	3,072	24	24	432	8	19	8
XC2V250-5FG256I	1.5V	5	FBGA	256	Ind.	250K	172	200	1,536	3,072	49,152	3,072	24	24	432	8	19	8
XC2V250-6FG256C	1.5V	6	FBGA	256	Com.	250K	172	200	1,536	3,072	49,152	3,072	24	24	432	8	19	8
XC2V250-4FG456C	1.5V	4	FBGA	456	Com.	250K	200	200	1,536	3,072	49,152	3,072	24	24	432	8	19	8
XC2V250-4FG456I	1.5V	4	FBGA	456	Ind.	250K	200	200	1,536	3,072	49,152	3,072	24	24	432	8	19	8
XC2V250-5FG456C	1.5V	5	FBGA	456	Com.	250K	200	200	1,536	3,072	49,152	3,072	24	24	432	8	19	8
XC2V250-5FG456I	1.5V	5	FBGA	456	Ind.	250K	200	200	1,536	3,072	49,152	3,072	24	24	432	8	19	8
XC2V250-6FG456C	1.5V	6	FBGA	456	Com.	250K	200	200	1,536	3,072	49,152	3,072	24	24	432	8	19	8

Table 1: Virtex-II Product Selection Guide (Continued)

Virtex-II Part No.	Volt.	Spd. Grd.	Pkg. Type	No. of Pins	Temp. Range	Sys. Gates	Avail. I/O	Max. Avail. I/O	(CLB) No. of Slices	(CLB) No. of LUTs	(CLB) Max Dist. RAM Bits	(CLB) No. of Flip-Flops	Multiplier Blks.	Select RAM 18-Kb Blks.	Select RAM Max. RAM (Kbits)	DCMs	Sup. Single I/O Stds.	Sup. Diff. Signal I/O Stds.
XC2V500-4FG256C	1.5V	4	FBGA	256	Com.	500K	172	264	3,072	6,144	98,304	6,144	32	32	576	8	19	8
XC2V500-4FG256I	1.5V	4	FBGA	256	Ind.	500K	172	264	3,072	6,144	98,304	6,144	32	32	576	8	19	8
XC2V500-5FG256C	1.5V	5	FBGA	256	Com.	500K	172	264	3,072	6,144	98,304	6,144	32	32	576	8	19	8
XC2V500-5FG256I	1.5V	5	FBGA	256	Ind.	500K	172	264	3,072	6,144	98,304	6,144	32	32	576	8	19	8
XC2V500-6FG256C	1.5V	6	FBGA	256	Com.	500K	172	264	3,072	6,144	98,304	6,144	32	32	576	8	19	8
XC2V500-4FG456C	1.5V	4	FBGA	456	Com.	500K	264	264	3,072	6,144	98,304	6,144	32	32	576	8	19	8
XC2V500-4FG456I	1.5V	4	FBGA	456	Ind.	500K	264	264	3,072	6,144	98,304	6,144	32	32	576	8	19	8
XC2V500-5FG456C	1.5V	5	FBGA	456	Com.	500K	264	264	3,072	6,144	98,304	6,144	32	32	576	8	19	8
XC2V500-5FG456I	1.5V	5	FBGA	456	Ind.	500K	264	264	3,072	6,144	98,304	6,144	32	32	576	8	19	8
XC2V500-6FG456C	1.5V	6	FBGA	456	Com.	500K	264	264	3,072	6,144	98,304	6,144	32	32	576	8	19	8
XC2V1000-4FG256C	1.5V	4	FBGA	256	Com.	1M	172	432	5,120	10,240	163,840	10,240	40	40	720	8	19	8
XC2V1000-4FG256I	1.5V	4	FBGA	256	Ind.	1M	172	432	5,120	10,240	163,840	10,240	40	40	720	8	19	8
XC2V1000-5FG256C	1.5V	5	FBGA	256	Com.	1M	172	432	5,120	10,240	163,840	10,240	40	40	720	8	19	8
XC2V1000-5FG256I	1.5V	5	FBGA	256	Ind.	1M	172	432	5,120	10,240	163,840	10,240	40	40	720	8	19	8
XC2V1000-6FG256C	1.5V	6	FBGA	256	Com.	1M	172	432	5,120	10,240	163,840	10,240	40	40	720	8	19	8
XC2V1000-4FG456C	1.5V	4	FBGA	456	Com.	1M	324	432	5,120	10,240	163,840	10,240	40	40	720	8	19	8
XC2V1000-4FG456I	1.5V	4	FBGA	456	Ind.	1M	324	432	5,120	10,240	163,840	10,240	40	40	720	8	19	8
XC2V1000-5FG456C	1.5V	5	FBGA	456	Com.	1M	324	432	5,120	10,240	163,840	10,240	40	40	720	8	19	8
XC2V1000-5FG456I	1.5V	5	FBGA	456	Ind.	1M	324	432	5,120	10,240	163,840	10,240	40	40	720	8	19	8
XC2V1000-6FG456C	1.5V	6	FBGA	456	Com.	1M	324	432	5,120	10,240	163,840	10,240	40	40	720	8	19	8
XC2V1000-4FF896C	1.5V	4	FBGA	896	Com.	1M	432	432	5,120	10,240	163,840	10,240	40	40	720	8	19	8
XC2V1000-4FF896I	1.5V	4	FBGA	896	Ind.	1M	432	432	5,120	10,240	163,840	10,240	40	40	720	8	19	8
XC2V1000-5FF896C	1.5V	5	FBGA	896	Com.	1M	432	432	5,120	10,240	163,840	10,240	40	40	720	8	19	8
XC2V1000-5FF896I	1.5V	5	FBGA	896	Ind.	1M	432	432	5,120	10,240	163,840	10,240	40	40	720	8	19	8
XC2V1000-6FF896C	1.5V	6	FBGA	896	Com.	1M	432	432	5,120	10,240	163,840	10,240	40	40	720	8	19	8
XC2V1000-4BG575C	1.5V	4	BGA	575	Com.	1M	328	432	5,120	10,240	163,840	10,240	40	40	720	8	19	8
XC2V1000-4BG575I	1.5V	4	BGA	575	Ind.	1M	328	432	5,120	10,240	163,840	10,240	40	40	720	8	19	8
XC2V1000-5BG575C	1.5V	5	BGA	575	Com.	1M	328	432	5,120	10,240	163,840	10,240	40	40	720	8	19	8
XC2V1000-5BG575I	1.5V	5	BGA	575	Ind.	1M	328	432	5,120	10,240	163,840	10,240	40	40	720	8	19	8
XC2V1000-6BG575C	1.5V	6	BGA	575	Com.	1M	328	432	5,120	10,240	163,840	10,240	40	40	720	8	19	8
XC2V1500-4FG676C	1.5V	4	FBGA	676	Com.	1.5M	392	528	7,680	15,360	245,760	15,360	48	48	864	8	19	8
XC2V1500-4FG676I	1.5V	4	FBGA	676	Ind.	1.5M	392	528	7,680	15,360	245,760	15,360	48	48	864	8	19	8
XC2V1500-5FG676C	1.5V	5	FBGA	676	Com.	1.5M	392	528	7,680	15,360	245,760	15,360	48	48	864	8	19	8
XC2V1500-5FG676I	1.5V	5	FBGA	676	Ind.	1.5M	392	528	7,680	15,360	245,760	15,360	48	48	864	8	19	8
XC2V1500-6FG676C	1.5V	6	FBGA	676	Com.	1.5M	392	528	7,680	15,360	245,760	15,360	48	48	864	8	19	8
XC2V1500-4FF896C	1.5V	4	FBGA	896	Com.	1.5M	528	528	7,680	15,360	245,760	15,360	48	48	864	8	19	8
XC2V1500-4FF896I	1.5V	4	FBGA	896	Ind.	1.5M	528	528	7,680	15,360	245,760	15,360	48	48	864	8	19	8
XC2V1500-5FF896C	1.5V	5	FBGA	896	Com.	1.5M	528	528	7,680	15,360	245,760	15,360	48	48	864	8	19	8

Table 1: Virtex-II Product Selection Guide (Continued)

Virtex-II Part No.	Volt.	Spd. Grd.	Pkg. Type	No. of Pins	Temp. Range	Sys. Gates	Avail. I/O	Max. Avail. I/O	(CLB) No. of Slices	(CLB) No. of LUTs	(CLB) Max Dist. RAM Bits	(CLB) No. of Flip-Flops	Multiplier Blks.	Select RAM 18-Kb Blks.	Select RAM Max. RAM (Kbits)	DCMs	Sup. Single Ended I/O Stds.	Sup. Diff. Signal I/O Stds.
XC2V1500-5FF896I	1.5V	5	FBGA	896	Ind.	1.5M	528	528	7,680	15,360	245,760	15,360	48	48	864	8	19	8
XC2V1500-6FF896C	1.5V	6	FBGA	896	Com.	1.5M	528	528	7,680	15,360	245,760	15,360	48	48	864	8	19	8
XC2V1500-4BG575C	1.5V	4	BGA	575	Com.	1.5M	392	528	7,680	15,360	245,760	15,360	48	48	864	8	19	8
XC2V1500-4BG575I	1.5V	4	BGA	575	Ind.	1.5M	392	528	7,680	15,360	245,760	15,360	48	48	864	8	19	8
XC2V1500-5BG575C	1.5V	5	BGA	575	Com.	1.5M	392	528	7,680	15,360	245,760	15,360	48	48	864	8	19	8
XC2V1500-5BG575I	1.5V	5	BGA	575	Ind.	1.5M	392	528	7,680	15,360	245,760	15,360	48	48	864	8	19	8
XC2V1500-6BG575C	1.5V	6	BGA	575	Com.	1.5M	392	528	7,680	15,360	245,760	15,360	48	48	864	8	19	8
XC2V2000-4FG676C	1.5V	4	FBGA	676	Com.	2M	456	624	10,752	21,504	344,064	21,504	56	56	1,008	8	19	8
XC2V2000-4FG676I	1.5V	4	FBGA	676	Ind.	2M	456	624	10,752	21,504	344,064	21,504	56	56	1,008	8	19	8
XC2V2000-5FG676C	1.5V	5	FBGA	676	Com.	2M	456	624	10,752	21,504	344,064	21,504	56	56	1,008	8	19	8
XC2V2000-5FG676I	1.5V	5	FBGA	676	Ind.	2M	456	624	10,752	21,504	344,064	21,504	56	56	1,008	8	19	8
XC2V2000-6FG676C	1.5V	6	FBGA	676	Com.	2M	456	624	10,752	21,504	344,064	21,504	56	56	1,008	8	19	8
XC2V2000-4FF896C	1.5V	4	FBGA	896	Com.	2M	624	624	10,752	21,504	344,064	21,504	56	56	1,008	8	19	8
XC2V2000-4FF896I	1.5V	4	FBGA	896	Ind.	2M	624	624	10,752	21,504	344,064	21,504	56	56	1,008	8	19	8
XC2V2000-5FF896C	1.5V	5	FBGA	896	Com.	2M	624	624	10,752	21,504	344,064	21,504	56	56	1,008	8	19	8
XC2V2000-5FF896I	1.5V	5	FBGA	896	Ind.	2M	624	624	10,752	21,504	344,064	21,504	56	56	1,008	8	19	8
XC2V2000-6FF896C	1.5V	6	FBGA	896	Com.	2M	624	624	10,752	21,504	344,064	21,504	56	56	1,008	8	19	8
XC2V2000-4BG575C	1.5V	4	BGA	575	Com.	2M	408	624	10,752	21,504	344,064	21,504	56	56	1,008	8	19	8
XC2V2000-4BG575I	1.5V	4	BGA	575	Ind.	2M	408	624	10,752	21,504	344,064	21,504	56	56	1,008	8	19	8
XC2V2000-5BG575C	1.5V	5	BGA	575	Com.	2M	408	624	10,752	21,504	344,064	21,504	56	56	1,008	8	19	8
XC2V2000-5BG575I	1.5V	5	BGA	575	Ind.	2M	408	624	10,752	21,504	344,064	21,504	56	56	1,008	8	19	8
XC2V2000-6BG575C	1.5V	6	BGA	575	Com.	2M	408	624	10,752	21,504	344,064	21,504	56	56	1,008	8	19	8
XC2V2000-4BG728C	1.5V	4	BGA	728	Com.	2M	456	624	10,752	21,504	344,064	21,504	56	56	1,008	8	19	8
XC2V2000-4BG728I	1.5V	4	BGA	728	Ind.	2M	456	624	10,752	21,504	344,064	21,504	56	56	1,008	8	19	8
XC2V2000-5BG728C	1.5V	5	BGA	728	Com.	2M	456	624	10,752	21,504	344,064	21,504	56	56	1,008	8	19	8
XC2V2000-5BG728I	1.5V	5	BGA	728	Ind.	2M	456	624	10,752	21,504	344,064	21,504	56	56	1,008	8	19	8
XC2V2000-6BG728C	1.5V	6	BGA	728	Com.	2M	456	624	10,752	21,504	344,064	21,504	56	56	1,008	8	19	8
XC2V2000-4BF957C	1.5V	4	FBGA	957	Com.	2M	624	624	10,752	21,504	344,064	21,504	56	56	1,008	8	19	8
XC2V2000-4BF957I	1.5V	4	FBGA	957	Ind.	2M	624	624	10,752	21,504	344,064	21,504	56	56	1,008	8	19	8
XC2V2000-5BF957C	1.5V	5	FBGA	957	Com.	2M	624	624	10,752	21,504	344,064	21,504	56	56	1,008	8	19	8
XC2V2000-5BF957I	1.5V	5	FBGA	957	Ind.	2M	624	624	10,752	21,504	344,064	21,504	56	56	1,008	8	19	8
XC2V2000-6BF957C	1.5V	6	FBGA	957	Com.	2M	624	624	10,752	21,504	344,064	21,504	56	56	1,008	8	19	8
XC2V3000-4FG676C	1.5V	4	FBGA	676	Com.	3M	484	720	14,336	28,672	458,752	28,672	96	96	1,728	12	19	8
XC2V3000-4FG676I	1.5V	4	FBGA	676	Ind.	3M	484	720	14,336	28,672	458,752	28,672	96	96	1,728	12	19	8
XC2V3000-5FG676C	1.5V	5	FBGA	676	Com.	3M	484	720	14,336	28,672	458,752	28,672	96	96	1,728	12	19	8
XC2V3000-5FG676I	1.5V	5	FBGA	676	Ind.	3M	484	720	14,336	28,672	458,752	28,672	96	96	1,728	12	19	8
XC2V3000-6FG676C	1.5V	6	FBGA	676	Com.	3M	484	720	14,336	28,672	458,752	28,672	96	96	1,728	12	19	8
XC2V3000-4FF1152C	1.5V	4	BGA	1152	Com.	3M	720	720	14,336	28,672	458,752	28,672	96	96	1,728	12	19	8

Table 1: Virtex-II Product Selection Guide (Continued)

Virtex-II Part No.	Volt.	Spd. Grd.	Pkg. Type	No. of Pins	Temp. Range	Sys. Gates	Avail. I/O	Max. Avail. I/O	(CLB) No. of Slices	(CLB) No. of LUTs	(CLB) Max Dist. RAM Bits	(CLB) No. of Flip-Flops	Multiplier Blks.	Select RAM 18-Kb Blks.	Select RAM Max. RAM (Kbits)	DCMs	Sup. Single Ended I/O Stds.	Sup. Diff. Signal I/O Stds.
XC2V3000-4FF1152I	1.5V	4	BGA	1152	Ind.	3M	720	720	14,336	28,672	458,752	28,672	96	96	1,728	12	19	8
XC2V3000-5FF1152C	1.5V	5	BGA	1152	Com.	3M	720	720	14,336	28,672	458,752	28,672	96	96	1,728	12	19	8
XC2V3000-5FF1152I	1.5V	5	BGA	1152	Ind.	3M	720	720	14,336	28,672	458,752	28,672	96	96	1,728	12	19	8
XC2V3000-6FF1152C	1.5V	6	BGA	1152	Com.	3M	720	720	14,336	28,672	458,752	28,672	96	96	1,728	12	19	8
XC2V3000-4BG728C	1.5V	4	BGA	728	Com.	3M	516	720	14,336	28,672	458,752	28,672	96	96	1,728	12	19	8
XC2V3000-4BG728I	1.5V	4	BGA	728	Ind.	3M	516	720	14,336	28,672	458,752	28,672	96	96	1,728	12	19	8
XC2V3000-5BG728C	1.5V	5	BGA	728	Com.	3M	516	720	14,336	28,672	458,752	28,672	96	96	1,728	12	19	8
XC2V3000-5BG728I	1.5V	5	BGA	728	Ind.	3M	516	720	14,336	28,672	458,752	28,672	96	96	1,728	12	19	8
XC2V3000-6BG728C	1.5V	6	BGA	728	Com.	3M	516	720	14,336	28,672	458,752	28,672	96	96	1,728	12	19	8
XC2V3000-4BF957C	1.5V	4	BGA	957	Com.	3M	684	720	14,336	28,672	458,752	28,672	96	96	1,728	12	19	8
XC2V3000-4BF957I	1.5V	4	BGA	957	Ind.	3M	684	720	14,336	28,672	458,752	28,672	96	96	1,728	12	19	8
XC2V3000-5BF957C	1.5V	5	BGA	957	Com.	3M	684	720	14,336	28,672	458,752	28,672	96	96	1,728	12	19	8
XC2V3000-5BF957I	1.5V	5	BGA	957	Ind.	3M	684	720	14,336	28,672	458,752	28,672	96	96	1,728	12	19	8
XC2V3000-6BF957C	1.5V	6	BGA	957	Com.	3M	684	720	14,336	28,672	458,752	28,672	96	96	1,728	12	19	8
XC2V4000-4FF1152C	1.5V	4	FBGA	1152	Com.	4M	824	912	23,040	46,080	737,280	46,080	120	120	2,160	12	19	8
XC2V4000-4FF1152I	1.5V	4	FBGA	1152	Ind.	4M	824	912	23,040	46,080	737,280	46,080	120	120	2,160	12	19	8
XC2V4000-5FF1152C	1.5V	5	FBGA	1152	Com.	4M	824	912	23,040	46,080	737,280	46,080	120	120	2,160	12	19	8
XC2V4000-5FF1152I	1.5V	5	FBGA	1152	Ind.	4M	824	912	23,040	46,080	737,280	46,080	120	120	2,160	12	19	8
XC2V4000-6FF1152C	1.5V	6	FBGA	1152	Com.	4M	824	912	23,040	46,080	737,280	46,080	120	120	2,160	12	19	8
XC2V4000-4FF1517C	1.5V	4	FBGA	1517	Com.	4M	912	912	23,040	46,080	737,280	46,080	120	120	2,160	12	19	8
XC2V4000-4FF1517I	1.5V	4	FBGA	1517	Ind.	4M	912	912	23,040	46,080	737,280	46,080	120	120	2,160	12	19	8
XC2V4000-5FF1517C	1.5V	5	FBGA	1517	Com.	4M	912	912	23,040	46,080	737,280	46,080	120	120	2,160	12	19	8
XC2V4000-5FF1517I	1.5V	5	FBGA	1517	Ind.	4M	912	912	23,040	46,080	737,280	46,080	120	120	2,160	12	19	8
XC2V4000-6FF1517C	1.5V	6	FBGA	1517	Com.	4M	912	912	23,040	46,080	737,280	46,080	120	120	2,160	12	19	8
XC2V4000-4BF957C	1.5V	4	BGA	957	Com.	4M	684	912	23,040	46,080	737,280	46,080	120	120	2,160	12	19	8
XC2V4000-4BF957I	1.5V	4	BGA	957	Ind.	4M	684	912	23,040	46,080	737,280	46,080	120	120	2,160	12	19	8
XC2V4000-5BF957C	1.5V	5	BGA	957	Com.	4M	684	912	23,040	46,080	737,280	46,080	120	120	2,160	12	19	8
XC2V4000-5BF957I	1.5V	5	BGA	957	Ind.	4M	684	912	23,040	46,080	737,280	46,080	120	120	2,160	12	19	8
XC2V4000-6BF957C	1.5V	6	BGA	957	Com.	4M	684	912	23,040	46,080	737,280	46,080	120	120	2,160	12	19	8
XC2V6000-4FF1152C	1.5V	4	FBGA	1152	Com.	6M	824	1,104	33,792	67,584	1,081,344	67,584	144	144	2,592	12	19	8
XC2V6000-4FF1152I	1.5V	4	FBGA	1152	Ind.	6M	824	1,104	33,792	67,584	1,081,344	67,584	144	144	2,592	12	19	8
XC2V6000-5FF1152C	1.5V	5	FBGA	1152	Com.	6M	824	1,104	33,792	67,584	1,081,344	67,584	144	144	2,592	12	19	8
XC2V6000-5FF1152I	1.5V	5	FBGA	1152	Ind.	6M	824	1,104	33,792	67,584	1,081,344	67,584	144	144	2,592	12	19	8
XC2V6000-6FF1152C	1.5V	6	FBGA	1152	Com.	6M	824	1,104	33,792	67,584	1,081,344	67,584	144	144	2,592	12	19	8
XC2V6000-4FF1517C	1.5V	4	FBGA	1517	Com.	6M	1,104	1,104	33,792	67,584	1,081,344	67,584	144	144	2,592	12	19	8
XC2V6000-4FF1517I	1.5V	4	FBGA	1517	Ind.	6M	1,104	1,104	33,792	67,584	1,081,344	67,584	144	144	2,592	12	19	8
XC2V6000-5FF1517C	1.5V	5	FBGA	1517	Com.	6M	1,104	1,104	33,792	67,584	1,081,344	67,584	144	144	2,592	12	19	8
XC2V6000-5FF1517I	1.5V	5	FBGA	1517	Ind.	6M	1,104	1,104	33,792	67,584	1,081,344	67,584	144	144	2,592	12	19	8

Table 1: Virtex-II Product Selection Guide (Continued)

Virtex-II Part No.	Volt.	Spd. Grd.	Pkg. Type	No. of Pins	Temp. Range	Sys. Gates	Avail. I/O	Max. Avail. I/O	(CLB) No. of Slices	(CLB) No. of LUTs	(CLB) Max Dist. RAM Bits	(CLB) No. of Flip-Flops	Multiplier Blks.	Select RAM 18-Kb Blks.	Select RAM Max. RAM (Kbits)	DCMs	Sup. Single Ended I/O Stds.	Sup. Diff. Signal I/O Stds.
XC2V6000-6FF1517C	1.5V	6	FBGA	1517	Com.	6M	1,104	1,104	33,792	67,584	1,081,344	67,584	144	144	2,592	12	19	8
XC2V6000-4BF957C	1.5V	4	BGA	957	Com.	6M	684	1,104	33,792	67,584	1,081,344	67,584	144	144	2,592	12	19	8
XC2V6000-4BF957I	1.5V	4	BGA	957	Ind.	6M	684	1,104	33,792	67,584	1,081,344	67,584	144	144	2,592	12	19	8
XC2V6000-5BF957C	1.5V	5	BGA	957	Com.	6M	684	1,104	33,792	67,584	1,081,344	67,584	144	144	2,592	12	19	8
XC2V6000-5BF957I	1.5V	5	BGA	957	Ind.	6M	684	1,104	33,792	67,584	1,081,344	67,584	144	144	2,592	12	19	8
XC2V6000-6BF957C	1.5V	6	BGA	957	Com.	6M	684	1,104	33,792	67,584	1,081,344	67,584	144	144	2,592	12	19	8

Table 2: Virtex-II Supported Single-Ended I/O Standards

I/O Standard	Output V _{CCO}	Input V _{CCO}	Input V _{REF}	Board Term Volt. (V _{TT})
LVTTTL	3.3	3.3	N/A	N/A
LVC MOS33	3.3	3.3	N/A	N/A
LVC MOS25	2.5	2.5	N/A	N/A
LVC MOS18	1.8	1.8	N/A	N/A
LVC MOS15	1.5	1.5	N/A	N/A
PCI33_3	3.3	3.3	N/A	N/A
PCI66_3	3.3	3.3	N/A	N/A
PCI-X	3.3	3.3	N/A	N/A
GTL	Note (1)	Note (1)	0.8	1.2
GTL P	Note (1)	Note (1)	1	1.5
HSTL_I	1.5	N/A	0.75	0.75
HSTL_II	1.5	N/A	0.75	0.75
HSTL_III	1.5	N/A	0.9	1.5
HSTL_IV	1.5	N/A	0.9	1.5
SSTL2_I	2.5	N/A	1.25	1.25
SSTL2_II	2.5	N/A	1.25	1.25
SSTL3_I	3.3	N/A	1.5	1.5
SSTL3_II	3.3	N/A	1.5	1.5
AGP-2X/AGP	3.3	N/A	1.32	N/A

Notes:

- V_{CCO} of GTL or GTLP should not be lower than the termination voltage or the voltage seen at the I/O pad.

Table 3: Virtex-II Supported Differential Signal I/O Standards

I/O Standard	Output V _{CCO}	Input V _{CCO}	Input V _{REF}	Output V _{OD}
LVPECL_33 to V _{CCO} - 1.64	3.3	N/A	N/A	V _{CCO} - 1.025
LDT_25	2.5	N/A	N/A	0.430 - 0.670
LVDS_33	3.3	N/A	N/A	0.250 - 0.400
LVDS_25	2.5	N/A	N/A	0.250 - 0.400
LVDS_33	3.3	N/A	N/A	0.330 - 0.700
LVDS_25	2.5	N/A	N/A	0.330 - 0.700
BLVDS_25	2.5	N/A	N/A	0.250 - 0.450
ULVDS_25	2.5	N/A	N/A	0.430 - 0.670

Virtex-E Extended Memory Products

Table 4: Virtex-E Extended Memory Product Selection Guide

Virtex-EM Part No.	Volt.	Spd. Grd.	Pkg. Type	No. of Pins	Temp. Range	Sys. Gates	Avai. I/O	Max. Avail. I/O	Logic Gates	Diff. I/O Pairs	Select-RAM 18-Kbit Blks.	(Select-RAM) Max RAM (Kbits)	Dist. RAM Bits	Sup. I/O Stds.	Status
XCV405E-6BG560C	1.8V	6	BGA	560	Com.	129,600	404	404	10,800	183	140	573,440	153,600	19	Available
XCV405E-6BG560I	1.8V	6	BGA	560	Ind.	129,600	404	404	10,800	183	140	573,440	153,600	19	Available
XCV405E-7BG560C	1.8V	7	BGA	560	Com.	129,600	404	404	10,800	183	140	573,440	153,600	19	Available
XCV405E-7BG560I	1.8V	7	BGA	560	Ind.	129,600	404	404	10,800	183	140	573,440	153,600	19	Available
XCV405E-8BG560C	1.8V	8	BGA	560	Com.	129,600	404	404	10,800	183	140	573,440	153,600	19	Available
XCV405E-8BG560I	1.8V	8	BGA	560	Ind.	129,600	404	404	10,800	183	140	573,440	153,600	19	Available
XCV405E-6FG676C	1.8V	6	FBGA	676	Com.	129,600	404	404	10,800	183	140	573,440	153,600	19	Available
XCV405E-6FG676I	1.8V	6	FBGA	676	Ind.	129,600	404	404	10,800	183	140	573,440	153,600	19	Available
XCV405E-7FG676C	1.8V	7	FBGA	676	Com.	129,600	404	404	10,800	183	140	573,440	153,600	19	Available
XCV405E-7FG676I	1.8V	7	FBGA	676	Ind.	129,600	404	404	10,800	183	140	573,440	153,600	19	Available
XCV405E-8FG676C	1.8V	8	FBGA	676	Com.	129,600	404	404	10,800	183	140	573,440	153,600	19	Available
XCV812E-6BG560C	1.8V	6	BGA	560	Com.	254,016	404	556	21,168	201	280	1,146,880	301,056	19	Available
XCV812E-6BG560I	1.8V	6	BGA	560	Ind.	254,016	404	556	21,168	201	280	1,146,880	301,056	19	Available
XCV812E7BG560C	1.8V	7	BGA	560	Com.	254,016	404	556	21,168	201	280	1,146,880	301,056	19	Available
XCV812E-7BG560I	1.8V	7	BGA	560	Ind.	254,016	404	556	21,168	201	280	1,146,880	301,056	19	Available
XCV812E-8BG560C	1.8V	8	BGA	560	Com.	254,016	404	556	21,168	201	280	1,146,880	301,056	19	Available
XCV812E-8BG560I	1.8V	8	BGA	560	Ind.	254,016	404	556	21,168	201	280	1,146,880	301,056	19	Available
XCV812E-6FG900C	1.8V	6	FBGA	900	Com.	254,016	556	556	21,168	201	280	1,146,880	301,056	19	Available
XCV812E-6FG900I	1.8V	6	FBGA	900	Ind.	254,016	556	556	21,168	201	280	1,146,880	301,056	19	Available
XCV812E-7FG900C	1.8V	7	FBGA	900	Com.	254,016	556	556	21,168	201	280	1,146,880	301,056	19	Available
XCV812E-7FG900I	1.8V	7	FBGA	900	Ind.	254,016	556	556	21,168	201	280	1,146,880	301,056	19	Available
XCV812E-8FG900C	1.8V	8	FBGA	900	Com.	254,016	556	556	21,168	201	280	1,146,880	301,056	19	Available

Table 5: Virtex-E Extended Memory Supported I/O Standards

I/O Standard	Output V _{CCO}	Input V _{CCO}	Input V _{REF}	Board Term Volt. (V _{TT})
LVCMOS33	3.3	3.3	N/A	N/A
LVCMOS25	2.5	2.5	N/A	N/A
LVCMOS18	1.8	1.8	N/A	N/A
LVCMOS15	1.5	1.5	N/A	N/A
PCI33_3	3.3	3.3	N/A	N/A
PCI66_3	3.3	3.3	N/A	N/A
PCI-X	3.3	3.3	N/A	N/A
GTL	Note (1)	Note (1)	0.8	1.2
GTLP	Note (1)	Note (1)	1	1.5
HSTL_I	1.5	N/A	0.75	0.75
HSTL_II	1.5	N/A	0.75	0.75

Table 5: Virtex-E Extended Memory Supported I/O Standards (Continued)

I/O Standard	Output V _{CCO}	Input V _{CCO}	Input V _{REF}	Board Term Volt. (V _{TT})
HSTL_III	1.5	N/A	0.9	1.5
HSTL_IV	1.5	N/A	0.9	1.5
SSTL2_I	2.5	N/A	1.25	1.25
SSTL2_II	2.5	N/A	1.25	1.25
SSTL3_I	3.3	N/A	1.5	1.5
SSTL3_II	3.3	N/A	1.5	1.5
AGP-2X/AGP	3.3	N/A	1.32	N/A

Notes:

- V_{CCO} of GTL or GTLP should not be lower than the termination voltage or the voltage seen at the I/O pad.

Virtex-E Products

Table 6: Virtex-E Product Selection Guide

Virtex-E Part No.	Volt.	Spd. Grd.	Pkg. Type	No. of Pins	Temp. Range	Avail. I/O	Max. Avail. I/O	Sys. Gates	Logic Gates	Logic Cells	Diff. I/O Pairs	Block RAM Bits	Dist. RAM Bits	Sup. I/O Stds.	Status
XCV50E-6CS144C	1.8V	6	CSP	144	Com.	94	176	71,693	20,736	1,728	83	65,536	24,576	19	Available
XCV50E-6CS144I	1.8V	6	CSP	144	Ind.	94	176	71,693	20,736	1,728	83	65,536	24,576	19	Available
XCV50E-7CS144C	1.8V	7	CSP	144	Com.	94	176	71,693	20,736	1,728	83	65,536	24,576	19	Available
XCV50E-7CS144I	1.8V	7	CSP	144	Ind.	94	176	71,693	20,736	1,728	83	65,536	24,576	19	Available
XCV50E-8CS144C	1.8V	8	CSP	144	Com.	94	176	71,693	20,736	1,728	83	65,536	24,576	19	Available
XCV50E-6PQ240C	1.8V	6	PQFP	240	Com.	158	176	71,693	20,736	1,728	83	65,536	24,576	19	Available
XCV50E-6PQ240I	1.8V	6	PQFP	240	Ind.	158	176	71,693	20,736	1,728	83	65,536	24,576	19	Available
XCV50E-7PQ240C	1.8V	7	PQFP	240	Com.	158	176	71,693	20,736	1,728	83	65,536	24,576	19	Available
XCV50E-7PQ240I	1.8V	7	PQFP	240	Ind.	158	176	71,693	20,736	1,728	83	65,536	24,576	19	Available
XCV50E-8PQ240C	1.8V	8	PQFP	240	Com.	158	176	71,693	20,736	1,728	83	65,536	24,576	19	Available
XCV50E-6FG256C	1.8V	6	FBGA	256	Com.	176	176	71,693	20,736	1,728	83	65,536	24,576	19	Available
XCV50E-6FG256I	1.8V	6	FBGA	256	Ind.	176	176	71,693	20,736	1,728	83	65,536	24,576	19	Available
XCV50E-7FG256C	1.8V	7	FBGA	256	Com.	176	176	71,693	20,736	1,728	83	65,536	24,576	19	Available
XCV50E-7FG256I	1.8V	7	FBGA	256	Ind.	176	176	71,693	20,736	1,728	83	65,536	24,576	19	Available
XCV50E-8FG256C	1.8V	8	FBGA	256	Com.	176	176	71,693	20,736	1,728	83	65,536	24,576	19	Available
XCV100E-6CS144C	1.8V	6	CSP	144	Com.	94	196	128,236	32,400	2,700	83	81,920	38,400	19	Available
XCV100E-6CS144I	1.8V	6	CSP	144	Ind.	94	196	128,236	32,400	2,700	83	81,920	38,400	19	Available
XCV100E-7CS144C	1.8V	7	CSP	144	Com.	94	196	128,236	32,400	2,700	83	81,920	38,400	19	Available
XCV100E-7CS144I	1.8V	7	CSP	144	Ind.	94	196	128,236	32,400	2,700	83	81,920	38,400	19	Available
XCV100E-8CS144C	1.8V	8	CSP	144	Com.	94	196	128,236	32,400	2,700	83	81,920	38,400	19	Available
XCV100E-6PQ240C	1.8V	6	PQFP	240	Com.	158	196	128,236	32,400	2,700	83	81,920	38,400	19	Available
XCV100E-6PQ240I	1.8V	6	PQFP	240	Ind.	158	196	128,236	32,400	2,700	83	81,920	38,400	19	Available
XCV100E-7PQ240C	1.8V	7	PQFP	240	Com.	158	196	128,236	32,400	2,700	83	81,920	38,400	19	Available
XCV100E-7PQ240I	1.8V	7	PQFP	240	Ind.	158	196	128,236	32,400	2,700	83	81,920	38,400	19	Available
XCV100E-8PQ240C	1.8V	8	PQFP	240	Com.	158	196	128,236	32,400	2,700	83	81,920	38,400	19	Available

Table 6: Virtex-E Product Selection Guide (Continued)

Virtex-E Part No.	Volt.	Spd. Grd.	Pkg. Type	No. of Pins	Temp. Range	Avail. I/O	Max. Avail. I/O	Sys. Gates	Logic Gates	Logic Cells	Diff. I/O Pairs	Block RAM Bits	Dist. RAM Bits	Sup. I/O Stds.	Status
XCV100E-6BG352C	1.8V	6	BGA	352	Com.	196	196	128,236	32,400	2,700	83	81,920	38,400	19	Available
XCV100E-6BG352I	1.8V	6	BGA	352	Ind.	196	196	128,236	32,400	2,700	83	81,920	38,400	19	Available
XCV100E-7BG352C	1.8V	7	BGA	352	Com.	196	196	128,236	32,400	2,700	83	81,920	38,400	19	Available
XCV100E-7BG352I	1.8V	7	BGA	352	Ind.	196	196	128,236	32,400	2,700	83	81,920	38,400	19	Available
XCV100E-8BG352C	1.8V	8	BGA	352	Com.	196	196	128,236	32,400	2,700	83	81,920	38,400	19	Available
XCV100E-6FG256C	1.8V	6	FBGA	256	Com.	176	196	128,236	32,400	2,700	83	81,920	38,400	19	Available
XCV100E-6FG256I	1.8V	6	FBGA	256	Ind.	176	196	128,236	32,400	2,700	83	81,920	38,400	19	Available
XCV100E-7FG256C	1.8V	7	FBGA	256	Com.	176	196	128,236	32,400	2,700	83	81,920	38,400	19	Available
XCV100E-7FG256I	1.8V	7	FBGA	256	Ind.	176	196	128,236	32,400	2,700	83	81,920	38,400	19	Available
XCV100E-8FG256C	1.8V	8	FBGA	256	Com.	176	196	128,236	32,400	2,700	83	81,920	38,400	19	Available
XCV200E-6CS144C	1.8V	6	CSP	144	Com.	94	284	306,393	63,504	5,292	119	114,688	75,264	19	Available
XCV200E-6CS144I	1.8V	6	CSP	144	Ind.	94	284	306,393	63,504	5,292	119	114,688	75,264	19	Available
XCV200E-7CS144C	1.8V	7	CSP	144	Com.	94	284	306,393	63,504	5,292	119	114,688	75,264	19	Available
XCV200E-7CS144I	1.8V	7	CSP	144	Ind.	94	284	306,393	63,504	5,292	119	114,688	75,264	19	Available
XCV200E-8CS144C	1.8V	8	CSP	144	Com.	94	284	306,393	63,504	5,292	119	114,688	75,264	19	Available
XCV200E-6PQ240C	1.8V	6	PQFP	240	Com.	158	284	306,393	63,504	5,292	119	114,688	75,264	19	Available
XCV200E-6PQ240I	1.8V	6	PQFP	240	Ind.	158	284	306,393	63,504	5,292	119	114,688	75,264	19	Available
XCV200E-7PQ240C	1.8V	7	PQFP	240	Com.	158	284	306,393	63,504	5,292	119	114,688	75,264	19	Available
XCV200E-7PQ240I	1.8V	7	PQFP	240	Ind.	158	284	306,393	63,504	5,292	119	114,688	75,264	19	Available
XCV200E-8PQ240C	1.8V	8	PQFP	240	Com.	158	284	306,393	63,504	5,292	119	114,688	75,264	19	Available
XCV200E-6BG352C	1.8V	6	BGA	352	Com.	260	284	306,393	63,504	5,292	119	114,688	75,264	19	Available
XCV200E-6BG352I	1.8V	6	BGA	352	Ind.	260	284	306,393	63,504	5,292	119	114,688	75,264	19	Available
XCV200E-7BG352C	1.8V	7	BGA	352	Com.	260	284	306,393	63,504	5,292	119	114,688	75,264	19	Available
XCV200E-7BG352I	1.8V	7	BGA	352	Ind.	260	284	306,393	63,504	5,292	119	114,688	75,264	19	Available
XCV200E-8BG352C	1.8V	8	BGA	352	Com.	260	284	306,393	63,504	5,292	119	114,688	75,264	19	Available
XCV200E-6FG256C	1.8V	6	FBGA	256	Com.	176	284	306,393	63,504	5,292	119	114,688	75,264	19	Available
XCV200E-6FG256I	1.8V	6	FBGA	256	Ind.	176	284	306,393	63,504	5,292	119	114,688	75,264	19	Available
XCV200E-7FG256C	1.8V	7	FBGA	256	Com.	176	284	306,393	63,504	5,292	119	114,688	75,264	19	Available
XCV200E-7FG256I	1.8V	7	FBGA	256	Ind.	176	284	306,393	63,504	5,292	119	114,688	75,264	19	Available
XCV200E-8FG256C	1.8V	8	FBGA	256	Com.	176	284	306,393	63,504	5,292	119	114,688	75,264	19	Available
XCV200E-8FG256I	1.8V	8	FBGA	256	Ind.	176	284	306,393	63,504	5,292	119	114,688	75,264	19	Available
XCV200E-6FG456C	1.8V	6	FBGA	456	Com.	284	284	306,393	63,504	5,292	119	114,688	75,264	19	Available
XCV200E-6FG456I	1.8V	6	FBGA	456	Ind.	284	284	306,393	63,504	5,292	119	114,688	75,264	19	Available
XCV200E-7FG456C	1.8V	7	FBGA	456	Com.	284	284	306,393	63,504	5,292	119	114,688	75,264	19	Available
XCV200E-7FG456I	1.8V	7	FBGA	456	Ind.	284	284	306,393	63,504	5,292	119	114,688	75,264	19	Available
XCV200E-8FG456C	1.8V	8	FBGA	456	Com.	284	284	306,393	63,504	5,292	119	114,688	75,264	19	Available
XCV300E-6PQ240C	1.8V	6	PQFP	240	Com.	158	316	411,955	82,944	6,912	137	131,072	98,304	19	Available
XCV300E-6PQ240I	1.8V	6	PQFP	240	Ind.	158	316	411,955	82,944	6,912	137	131,072	98,304	19	Available
XCV300E-7PQ240C	1.8V	7	PQFP	240	Com.	158	316	411,955	82,944	6,912	137	131,072	98,304	19	Available
XCV300E-7PQ240I	1.8V	7	PQFP	240	Ind.	158	316	411,955	82,944	6,912	137	131,072	98,304	19	Available

Table 6: Virtex-E Product Selection Guide (Continued)

Virtex-E Part No.	Volt.	Spd. Grd.	Pkg. Type	No. of Pins	Temp. Range	Avail. I/O	Max. Avail. I/O	Sys. Gates	Logic Gates	Logic Cells	Diff. I/O Pairs	Block RAM Bits	Dist. RAM Bits	Sup. I/O Stds.	Status
XCV300E-8PQ240C	1.8V	8	PQFP	240	Com.	158	316	411,955	82,944	6,912	137	131,072	98,304	19	Available
XCV300E-6BG352C	1.8V	6	BGA	352	Com.	260	316	411,955	82,944	6,912	137	131,072	98,304	19	Available
XCV300E-6BG352I	1.8V	6	BGA	352	Ind.	260	316	411,955	82,944	6,912	137	131,072	98,304	19	Available
XCV300E-7BG352C	1.8V	7	BGA	352	Com.	260	316	411,955	82,944	6,912	137	131,072	98,304	19	Available
XCV300E-7BG352I	1.8V	7	BGA	352	Ind.	260	316	411,955	82,944	6,912	137	131,072	98,304	19	Available
XCV300E-8BG352C	1.8V	8	BGA	352	Com.	260	316	411,955	82,944	6,912	137	131,072	98,304	19	Available
XCV300E-6BG432C	1.8V	6	BGA	432	Com.	316	316	411,955	82,944	6,912	137	131,072	98,304	19	Available
XCV300E-6BG432I	1.8V	6	BGA	432	Ind.	316	316	411,955	82,944	6,912	137	131,072	98,304	19	Available
XCV300E-7BG432C	1.8V	7	BGA	432	Com.	316	316	411,955	82,944	6,912	137	131,072	98,304	19	Available
XCV300E-7BG432I	1.8V	7	BGA	432	Ind.	316	316	411,955	82,944	6,912	137	131,072	98,304	19	Available
XCV300E-8BG432C	1.8V	8	BGA	432	Com.	316	316	411,955	82,944	6,912	137	131,072	98,304	19	Available
XCV300E-8BG432I	1.8V	8	BGA	432	Ind.	316	316	411,955	82,944	6,912	137	131,072	98,304	19	Available
XCV300E-6FG256C	1.8V	6	FBGA	256	Com.	176	316	411,955	82,944	6,912	137	131,072	98,304	19	Available
XCV300E-6FG256I	1.8V	6	FBGA	256	Ind.	176	316	411,955	82,944	6,912	137	131,072	98,304	19	Available
XCV300E-7FG256C	1.8V	7	FBGA	256	Com.	176	316	411,955	82,944	6,912	137	131,072	98,304	19	Available
XCV300E-7FG256I	1.8V	7	FBGA	256	Ind.	176	316	411,955	82,944	6,912	137	131,072	98,304	19	Available
XCV300E-8FG256C	1.8V	8	FBGA	256	Com.	176	316	411,955	82,944	6,912	137	131,072	98,304	19	Available
XCV300E-6FG456C	1.8V	6	FBGA	456	Com.	312	316	411,955	82,944	6,912	137	131,072	98,304	19	Available
XCV300E-6FG456I	1.8V	6	FBGA	456	Ind.	312	316	411,955	82,944	6,912	137	131,072	98,304	19	Available
XCV300E-7FG456C	1.8V	7	FBGA	456	Com.	312	316	411,955	82,944	6,912	137	131,072	98,304	19	Available
XCV300E-7FG456I	1.8V	7	FBGA	456	Ind.	312	316	411,955	82,944	6,912	137	131,072	98,304	19	Available
XCV300E-8FG456C	1.8V	8	FBGA	456	Com.	312	316	411,955	82,944	6,912	137	131,072	98,304	19	Available
XCV400E-6PQ240C	1.8V	6	PQFP	240	Com.	158	404	569,952	129,600	10,800	183	163,840	153,600	19	Available
XCV400E-6PQ240I	1.8V	6	PQFP	240	Ind.	158	404	569,952	129,600	10,800	183	163,840	153,600	19	Available
XCV400E-7PQ240C	1.8V	7	PQFP	240	Com.	158	404	569,952	129,600	10,800	183	163,840	153,600	19	Available
XCV400E-7PQ240I	1.8V	7	PQFP	240	Ind.	158	404	569,952	129,600	10,800	183	163,840	153,600	19	Available
XCV400E-8PQ240C	1.8V	8	PQFP	240	Com.	158	404	569,952	129,600	10,800	183	163,840	153,600	19	Available
XCV400E-6BG432C	1.8V	6	BGA	432	Com.	316	404	569,952	129,600	10,800	183	163,840	153,600	19	Available
XCV400E-6BG432I	1.8V	6	BGA	432	Ind.	316	404	569,952	129,600	10,800	183	163,840	153,600	19	Available
XCV400E-7BG432C	1.8V	7	BGA	432	Com.	316	404	569,952	129,600	10,800	183	163,840	153,600	19	Available
XCV400E-7BG432I	1.8V	7	BGA	432	Ind.	316	404	569,952	129,600	10,800	183	163,840	153,600	19	Available
XCV400E-8BG432C	1.8V	8	BGA	432	Com.	316	404	569,952	129,600	10,800	183	163,840	153,600	19	Available
XCV400E-6BG560C	1.8V	6	BGA	560	Com.	404	404	569,952	129,600	10,800	183	163,840	153,600	19	Available
XCV400E-6BG560I	1.8V	6	BGA	560	Ind.	404	404	569,952	129,600	10,800	183	163,840	153,600	19	Available
XCV400E-7BG560C	1.8V	7	BGA	560	Com.	404	404	569,952	129,600	10,800	183	163,840	153,600	19	Available
XCV400E-7BG560I	1.8V	7	BGA	560	Ind.	404	404	569,952	129,600	10,800	183	163,840	153,600	19	Available
XCV400E-8BG560C	1.8V	8	BGA	560	Com.	404	404	569,952	129,600	10,800	183	163,840	153,600	19	Available
XCV400E-6FG676C	1.8V	6	FBGA	676	Com.	404	404	569,952	129,600	10,800	183	163,840	153,600	19	Available
XCV400E-6FG676I	1.8V	6	FBGA	676	Ind.	404	404	569,952	129,600	10,800	183	163,840	153,600	19	Available
XCV400E-7FG676C	1.8V	7	FBGA	676	Com.	404	404	569,952	129,600	10,800	183	163,840	153,600	19	Available

Table 6: Virtex-E Product Selection Guide (Continued)

Virtex-E Part No.	Volt.	Spd. Grd.	Pkg. Type	No. of Pins	Temp. Range	Avail. I/O	Max. Avail. I/O	Sys. Gates	Logic Gates	Logic Cells	Diff. I/O Pairs	Block RAM Bits	Dist. RAM Bits	Sup. I/O Stds.	Status
XCV400E-7FG676I	1.8V	7	FBGA	676	Ind.	404	404	569,952	129,600	10,800	183	163,840	153,600	19	Available
XCV400E-8FG676C	1.8V	8	FBGA	676	Com.	404	404	569,952	129,600	10,800	183	163,840	153,600	19	Available
XCV600E-6HQ240C	1.8V	6	HQFP	240	Com.	158	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV600E-6HQ240I	1.8V	6	HQFP	240	Ind.	158	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV600E-7HQ240C	1.8V	7	HQFP	240	Com.	158	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV600E-7HQ240I	1.8V	7	HQFP	240	Ind.	158	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV600E-8HQ240C	1.8V	8	HQFP	240	Com.	158	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV600E-6BG432C	1.8V	6	BGA	432	Com.	316	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV600E-6BG432I	1.8V	6	BGA	432	Ind.	316	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV600E-7BG432C	1.8V	7	BGA	432	Com.	316	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV600E-7BG432I	1.8V	7	BGA	432	Ind.	316	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV600E-8BG432C	1.8V	8	BGA	432	Com.	316	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV600E-6BG560C	1.8V	6	BGA	560	Com.	404	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV600E-6BG560I	1.8V	6	BGA	560	Ind.	404	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV600E-7BG560C	1.8V	7	BGA	560	Com.	404	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV600E-7BG560I	1.8V	7	BGA	560	Ind.	404	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV600E-8BG560C	1.8V	8	BGA	560	Com.	404	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV600E-6FG676C	1.8V	6	FBGA	676	Com.	444	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV600E-6FG676I	1.8V	6	FBGA	676	Ind.	444	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV600E-7FG676C	1.8V	7	FBGA	676	Com.	444	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV600E-7FG676I	1.8V	7	FBGA	676	Ind.	444	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV600E-8FG676C	1.8V	8	FBGA	676	Com.	444	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV600E-6FG680C	1.8V	6	FBGA	680	Com.	512	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV600E-6FG680I	1.8V	6	FBGA	680	Ind.	512	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV600E-7FG680C	1.8V	7	FBGA	680	Com.	512	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV600E-7FG680I	1.8V	7	FBGA	680	Ind.	512	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV600E-8FG680C	1.8V	8	FBGA	680	Com.	512	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV600E-6FG900C	1.8V	6	FBGA	900	Com.	512	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV600E-6FG900I	1.8V	6	FBGA	900	Ind.	512	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV600E-7FG900C	1.8V	7	FBGA	900	Com.	512	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV600E-7FG900I	1.8V	7	FBGA	900	Ind.	512	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV600E-8FG900C	1.8V	8	FBGA	900	Com.	512	512	985,882	186,624	15,552	247	294,912	221,184	19	Available
XCV1000E-6HQ240C	1.8V	6	HQFP	240	Com.	158	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-6HQ240I	1.8V	6	HQFP	240	Ind.	158	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-7HQ240C	1.8V	7	HQFP	240	Com.	158	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-7HQ240I	1.8V	7	HQFP	240	Ind.	158	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-8HQ240C	1.8V	8	HQFP	240	Com.	158	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-6BG560C	1.8V	6	BGA	560	Com.	404	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-6BG560I	1.8V	6	BGA	560	Ind.	404	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-7BG560C	1.8V	7	BGA	560	Com.	404	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available

Table 6: Virtex-E Product Selection Guide (Continued)

Virtex-E Part No.	Volt.	Spd. Grd.	Pkg. Type	No. of Pins	Temp. Range	Avail. I/O	Max. Avail. I/O	Sys. Gates	Logic Gates	Logic Cells	Diff. I/O Pairs	Block RAM Bits	Dist. RAM Bits	Sup. I/O Stds.	Status
XCV1000E-7BG560I	1.8V	7	BGA	560	Ind.	404	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-8BG560C	1.8V	8	BGA	560	Com.	404	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-8BG560I	1.8V	8	BGA	560	Ind.	404	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-6FG680C	1.8V	6	FBGA	680	Com.	512	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-6FG680I	1.8V	6	FBGA	680	Ind.	512	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-7FG680C	1.8V	7	FBGA	680	Com.	512	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-7FG680I	1.8V	7	FBGA	680	Ind.	512	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-8FG680C	1.8V	8	FBGA	680	Com.	512	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-6FG860C	1.8V	6	FBGA	860	Com.	660	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-6FG860I	1.8V	6	FBGA	860	Ind.	660	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-7FG860C	1.8V	7	FBGA	860	Com.	660	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-7FG860I	1.8V	7	FBGA	860	Ind.	660	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-8FG860C	1.8V	8	FBGA	860	Com.	660	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-6FG900C	1.8V	6	FBGA	900	Com.	660	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-6FG900I	1.8V	6	FBGA	900	Ind.	660	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-7FG900C	1.8V	7	FBGA	900	Com.	660	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-7FG900I	1.8V	7	FBGA	900	Ind.	660	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-8FG900C	1.8V	8	FBGA	900	Com.	660	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-8FG900I	1.8V	8	FBGA	900	Ind.	660	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-6FG1156C	1.8V	6	FBGA	1156	Com.	660	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-6FG1156I	1.8V	6	FBGA	1156	Ind.	660	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-7FG1156C	1.8V	7	FBGA	1156	Com.	660	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-7FG1156I	1.8V	7	FBGA	1156	Ind.	660	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1000E-8FG1156C	1.8V	8	FBGA	1156	Com.	660	660	1,569,178	331,776	27,648	281	393,216	393,216	19	Available
XCV1600E-6BG560C	1.8V	6	BGA	560	Com.	404	724	2,188,742	419,904	34,992	344	589,824	497,664	19	Available
XCV1600E-6BG560I	1.8V	6	BGA	560	Ind.	404	724	2,188,742	419,904	34,992	344	589,824	497,664	19	Available
XCV1600E-7BG560C	1.8V	7	BGA	560	Com.	404	724	2,188,742	419,904	34,992	344	589,824	497,664	19	Available
XCV1600E-7BG560I	1.8V	7	BGA	560	Ind.	404	724	2,188,742	419,904	34,992	344	589,824	497,664	19	Available
XCV1600E-8BG560C	1.8V	8	BGA	560	Com.	404	724	2,188,742	419,904	34,992	344	589,824	497,664	19	Available
XCV1600E-6FG680C	1.8V	6	FBGA	680	Com.	512	724	2,188,742	419,904	34,992	344	589,824	497,664	19	Available
XCV1600E-6FG680I	1.8V	6	FBGA	680	Ind.	512	724	2,188,742	419,904	34,992	344	589,824	497,664	19	Available
XCV1600E-7FG680C	1.8V	7	FBGA	680	Com.	512	724	2,188,742	419,904	34,992	344	589,824	497,664	19	Available
XCV1600E-7FG680I	1.8V	7	FBGA	680	Ind.	512	724	2,188,742	419,904	34,992	344	589,824	497,664	19	Available
XCV1600E-8FG680C	1.8V	8	FBGA	680	Com.	512	724	2,188,742	419,904	34,992	344	589,824	497,664	19	Available
XCV1600E-6FG860C	1.8V	6	FBGA	860	Com.	660	724	2,188,742	419,904	34,992	344	589,824	497,664	19	Available
XCV1600E-6FG860I	1.8V	6	FBGA	860	Ind.	660	724	2,188,742	419,904	34,992	344	589,824	497,664	19	Available
XCV1600E-7FG860C	1.8V	7	FBGA	860	Com.	660	724	2,188,742	419,904	34,992	344	589,824	497,664	19	Available
XCV1600E-7FG860I	1.8V	7	FBGA	860	Ind.	660	724	2,188,742	419,904	34,992	344	589,824	497,664	19	Available
XCV1600E-8FG860C	1.8V	8	FBGA	860	Com.	660	724	2,188,742	419,904	34,992	344	589,824	497,664	19	Available
XCV1600E-6FG900C	1.8V	6	FBGA	900	Com.	700	724	2,188,742	419,904	34,992	344	589,824	497,664	19	Available

Table 6: Virtex-E Product Selection Guide (Continued)

Virtex-E Part No.	Volt.	Spd. Grd.	Pkg. Type	No. of Pins	Temp. Range	Avail. I/O	Max. Avail. I/O	Sys. Gates	Logic Gates	Logic Cells	Diff. I/O Pairs	Block RAM Bits	Dist. RAM Bits	Sup. I/O Stds.	Status
XCV1600E-6FG900I	1.8V	6	FBGA	900	Ind.	700	724	2,188,742	419,904	34,992	344	589,824	497,664	19	Available
XCV1600E-7FG900C	1.8V	7	FBGA	900	Com.	700	724	2,188,742	419,904	34,992	344	589,824	497,664	19	Available
XCV1600E-7FG900I	1.8V	7	FBGA	900	Ind.	700	724	2,188,742	419,904	34,992	344	589,824	497,664	19	Available
XCV1600E-8FG900C	1.8V	8	FBGA	900	Com.	700	724	2,188,742	419,904	34,992	344	589,824	497,664	19	Available
XCV1600E-6FG1156C	1.8V	6	FBGA	1156	Com.	724	724	2,188,742	419,904	34,992	344	589,824	497,664	19	Available
XCV1600E-6FG1156I	1.8V	6	FBGA	1156	Ind.	724	724	2,188,742	419,904	34,992	344	589,824	497,664	19	Available
XCV1600E-7FG1156C	1.8V	7	FBGA	1156	Com.	724	724	2,188,742	419,904	34,992	344	589,824	497,664	19	Available
XCV1600E-7FG1156I	1.8V	7	FBGA	1156	Ind.	724	724	2,188,742	419,904	34,992	344	589,824	497,664	19	Available
XCV1600E-8FG1156C	1.8V	8	FBGA	1156	Com.	724	724	2,188,742	419,904	34,992	344	589,824	497,664	19	Available
XCV2000E-6BG560C	1.8V	6	BGA	560	Com.	404	804	2,541,952	518,400	43,200	344	655,360	614,400	19	Available
XCV2000E-6BG560I	1.8V	6	BGA	560	Ind.	404	804	2,541,952	518,400	43,200	344	655,360	614,400	19	Available
XCV2000E-7BG560C	1.8V	7	BGA	560	Com.	404	804	2,541,952	518,400	43,200	344	655,360	614,400	19	Available
XCV2000E-7BG560I	1.8V	7	BGA	560	Ind.	404	804	2,541,952	518,400	43,200	344	655,360	614,400	19	Available
XCV2000E-8BG560C	1.8V	8	BGA	560	Com.	404	804	2,541,952	518,400	43,200	344	655,360	614,400	19	Available
XCV2000E-6FG680C	1.8V	6	FBGA	680	Com.	512	804	2,541,952	518,400	43,200	344	655,360	614,400	19	Available
XCV2000E-6FG680I	1.8V	6	FBGA	680	Ind.	512	804	2,541,952	518,400	43,200	344	655,360	614,400	19	Available
XCV2000E-7FG680C	1.8V	7	FBGA	680	Com.	512	804	2,541,952	518,400	43,200	344	655,360	614,400	19	Available
XCV2000E-7FG680I	1.8V	7	FBGA	680	Ind.	512	804	2,541,952	518,400	43,200	344	655,360	614,400	19	Available
XCV2000E-8FG680C	1.8V	8	FBGA	680	Com.	512	804	2,541,952	518,400	43,200	344	655,360	614,400	19	Available
XCV2000E-6FG860C	1.8V	6	FBGA	860	Com.	660	804	2,541,952	518,400	43,200	344	655,360	614,400	19	Available
XCV2000E-6FG860I	1.8V	6	FBGA	860	Ind.	660	804	2,541,952	518,400	43,200	344	655,360	614,400	19	Available
XCV2000E-7FG860C	1.8V	7	FBGA	860	Com.	660	804	2,541,952	518,400	43,200	344	655,360	614,400	19	Available
XCV2000E-7FG860I	1.8V	7	FBGA	860	Ind.	660	804	2,541,952	518,400	43,200	344	655,360	614,400	19	Available
XCV2000E-8FG860C	1.8V	8	FBGA	860	Com.	660	804	2,541,952	518,400	43,200	344	655,360	614,400	19	Available
XCV2000E-6FG1156C	1.8V	6	FBGA	1156	Com.	804	804	2,541,952	518,400	43,200	344	655,360	614,400	19	Available
XCV2000E-6FG1156I	1.8V	6	FBGA	1156	Ind.	804	804	2,541,952	518,400	43,200	344	655,360	614,400	19	Available
XCV2000E-7FG1156C	1.8V	7	FBGA	1156	Com.	804	804	2,541,952	518,400	43,200	344	655,360	614,400	19	Available
XCV2000E-7FG1156I	1.8V	7	FBGA	1156	Ind.	804	804	2,541,952	518,400	43,200	344	655,360	614,400	19	Available
XCV2000E-8FG1156C	1.8V	8	FBGA	1156	Com.	804	804	2,541,952	518,400	43,200	344	655,360	614,400	19	Available
XCV2600E-6FG1156C	1.8V	6	FBGA	1156	Com.	804	804	3,263,755	685,584	57,132	344	753,664	812,544	19	Available
XCV2600E-7FG1156C	1.8V	7	FBGA	1156	Com.	804	804	3,263,755	685,584	57,132	344	753,664	812,544	19	Available
XCV2600E-8FG1156C	1.8V	8	FBGA	1156	Com.	804	804	3,263,755	685,584	57,132	344	753,664	812,544	19	Available
XCV3200E-6CG1156C	1.8V	6	CBGA	1156	Com.	804	804	4,074,387	876,096	73,008	344	851,968	1,038,336	19	Available
XCV3200E-7CG1156C	1.8V	7	CBGA	1156	Com.	804	804	4,074,387	876,096	73,008	344	851,968	1,038,336	19	Available
XCV3200E-8CG1156C	1.8V	8	CBGA	1156	Com.	804	804	4,074,387	876,096	73,008	344	851,968	1,038,336	19	Available

Table 7: Virtex-E Supported I/O Standards

I/O Standard	Output V _{CCO}	Input V _{CCO}	Input V _{REF}	Board Term. Voltage (V _{TT})
LVCMOS33	3.3	3.3	N/A	N/A
LVCMOS25	2.5	2.5	N/A	N/A
LVCMOS18	1.8	1.8	N/A	N/A
LVCMOS15	1.5	1.5	N/A	N/A
PCI33_3	3.3	3.3	N/A	N/A
PCI66_3	3.3	3.3	N/A	N/A
PCI-X	3.3	3.3	N/A	N/A
GTL	Note (1)	Note (1)	0.8	1.2
GTLP	Note (1)	Note (1)	1	1.5
HSTL_I	1.5	N/A	0.75	0.75
HSTL_II	1.5	N/A	0.75	0.75
HSTL_III	1.5	N/A	0.9	1.5
HSTL_IV	1.5	N/A	0.9	1.5
SSTL2_I	2.5	N/A	1.25	1.25
SSTL2_II	2.5	N/A	1.25	1.25
SSTL3_I	3.3	N/A	1.5	1.5
SSTL3_II	3.3	N/A	1.5	1.5
AGP-2X/AGP	3.3	N/A	1.32	N/A

VCCO of GTL or GTLP should not be lower than the termination voltage or the voltage seen at the I/O pad.

Virtex Products

Table 8: Virtex Product Selection Guide

Virtex Part No.	Volt.	Speed Grade	Pkg. Type	No. of Pins	Temp. Range	Avail. I/O	Max. Avail. I/O	Sys. Gates	Logic Cells	Block RAM Bits	Max. Select-RAM+ Bits	Sup. I/O Stds.	Status
XCV50-4CS144C	2.5V	4	CSP	144	Com.	94	180	57,906	1,728	32,768	24,576	15	Available
XCV50-4CS144I	2.5V	4	CSP	144	Ind.	94	180	57,906	1,728	32,768	24,576	15	Available
XCV50-5CS144C	2.5V	5	CSP	144	Com.	94	180	57,906	1,728	32,768	24,576	15	Available
XCV50-5CS144I	2.5V	5	CSP	144	Ind.	94	180	57,906	1,728	32,768	24,576	15	Available
XCV50-6CS144C	2.5V	6	CSP	144	Com.	94	180	57,906	1,728	32,768	24,576	15	Available
XCV50-6CS144I	2.5V	6	CSP	144	Ind.	94	180	57,906	1,728	32,768	24,576	15	Available
XCV50-4TQ144C	2.5V	4	TQFP	144	Com.	94	180	57,906	1,728	32,768	24,576	15	Available
XCV50-4TQ144I	2.5V	4	TQFP	144	Ind.	94	180	57,906	1,728	32,768	24,576	15	Available
XCV50-5TQ144C	2.5V	5	TQFP	144	Com.	94	180	57,906	1,728	32,768	24,576	15	Available
XCV50-5TQ144I	2.5V	5	TQFP	144	Ind.	94	180	57,906	1,728	32,768	24,576	15	Available
XCV50-6TQ144C	2.5V	6	TQFP	144	Com.	94	180	57,906	1,728	32,768	24,576	15	Available
XCV50-6TQ144I	2.5V	6	TQFP	144	Ind.	94	180	57,906	1,728	32,768	24,576	15	Available
XCV50-4PQ240C	2.5V	4	PQFP	240	Com.	166	180	57,906	1,728	32,768	24,576	15	Available
XCV50-4PQ240I	2.5V	4	PQFP	240	Ind.	166	180	57,906	1,728	32,768	24,576	15	Available
XCV50-5PQ240C	2.5V	5	PQFP	240	Com.	166	180	57,906	1,728	32,768	24,576	15	Available

Table 8: Virtex Product Selection Guide (Continued)

Virtex Part No.	Volt.	Speed Grade	Pkg. Type	No. of Pins	Temp. Range	Avail. I/O	Max. Avail. I/O	Sys. Gates	Logic Cells	Block RAM Bits	Max. Select-RAM+ Bits	Sup. I/O Stds.	Status
XCV50-5PQ240I	2.5V	5	PQFP	240	Ind.	166	180	57,906	1,728	32,768	24,576	15	Available
XCV50-6PQ240C	2.5V	6	PQFP	240	Com.	166	180	57,906	1,728	32,768	24,576	15	Available
XCV50-6PQ240I	2.5V	6	PQFP	240	Ind.	166	180	57,906	1,728	32,768	24,576	15	Available
XCV50-4BG256C	2.5V	4	BGA	256	Com.	180	180	57,906	1,728	32,768	24,576	15	Available
XCV50-4BG256I	2.5V	4	BGA	256	Ind.	180	180	57,906	1,728	32,768	24,576	15	Available
XCV50-5BG256C	2.5V	5	BGA	256	Com.	180	180	57,906	1,728	32,768	24,576	15	Available
XCV50-5BG256I	2.5V	5	BGA	256	Ind.	180	180	57,906	1,728	32,768	24,576	15	Available
XCV50-6BG256C	2.5V	6	BGA	256	Com.	180	180	57,906	1,728	32,768	24,576	15	Available
XCV50-6BG256I	2.5V	6	BGA	256	Ind.	180	180	57,906	1,728	32,768	24,576	15	Available
XCV50-4FG256C	2.5V	4	FBGA	256	Com.	176	180	57,906	1,728	32,768	24,576	15	Available
XCV50-4FG256I	2.5V	4	FBGA	256	Ind.	176	180	57,906	1,728	32,768	24,576	15	Available
XCV50-5FG256C	2.5V	5	FBGA	256	Com.	176	180	57,906	1,728	32,768	24,576	15	Available
XCV50-5FG256I	2.5V	5	FBGA	256	Ind.	176	180	57,906	1,728	32,768	24,576	15	Available
XCV50-6FG256C	2.5V	6	FBGA	256	Com.	176	180	57,906	1,728	32,768	24,576	15	Available
XCV50-6FG256I	2.5V	6	FBGA	256	Ind.	176	180	57,906	1,728	32,768	24,576	15	Available
XCV100-4CS144C	2.5V	4	CSP	144	Com.	94	180	108,904	2,700	40,960	38,400	15	Available
XCV100-4CS144I	2.5V	4	CSP	144	Ind.	94	180	108,904	2,700	40,960	38,400	15	Available
XCV100-5CS144C	2.5V	5	CSP	144	Com.	94	180	108,904	2,700	40,960	38,400	15	Available
XCV100-5CS144I	2.5V	5	CSP	144	Ind.	94	180	108,904	2,700	40,960	38,400	15	Available
XCV100-6CS144C	2.5V	6	CSP	144	Com.	94	180	108,904	2,700	40,960	38,400	15	Available
XCV100-6CS144I	2.5V	6	CSP	144	Ind.	94	180	108,904	2,700	40,960	38,400	15	Available
XCV100-4TQ144C	2.5V	4	TQFP	144	Com.	94	180	108,904	2,700	40,960	38,400	15	Available
XCV100-4TQ144I	2.5V	4	TQFP	144	Ind.	94	180	108,904	2,700	40,960	38,400	15	Available
XCV100-5TQ144C	2.5V	5	TQFP	144	Com.	94	180	108,904	2,700	40,960	38,400	15	Available
XCV100-5TQ144I	2.5V	5	TQFP	144	Ind.	94	180	108,904	2,700	40,960	38,400	15	Available
XCV100-6TQ144C	2.5V	6	TQFP	144	Com.	94	180	108,904	2,700	40,960	38,400	15	Available
XCV100-6TQ144I	2.5V	6	TQFP	144	Ind.	94	180	108,904	2,700	40,960	38,400	15	Available
XCV100-4PQ240C	2.5V	4	PQFP	240	Com.	166	180	108,904	2,700	40,960	38,400	15	Available
XCV100-4PQ240I	2.5V	4	PQFP	240	Ind.	166	180	108,904	2,700	40,960	38,400	15	Available
XCV100-5PQ240C	2.5V	5	PQFP	240	Com.	166	180	108,904	2,700	40,960	38,400	15	Available
XCV100-5PQ240I	2.5V	5	PQFP	240	Ind.	166	180	108,904	2,700	40,960	38,400	15	Available
XCV100-6PQ240C	2.5V	6	PQFP	240	Com.	166	180	108,904	2,700	40,960	38,400	15	Available
XCV100-6PQ240I	2.5V	6	PQFP	240	Ind.	166	180	108,904	2,700	40,960	38,400	15	Available
XCV100-4BG256C	2.5V	4	BGA	256	Com.	180	180	108,904	2,700	40,960	38,400	15	Available
XCV100-4BG256I	2.5V	4	BGA	256	Ind.	180	180	108,904	2,700	40,960	38,400	15	Available
XCV100-5BG256C	2.5V	5	BGA	256	Com.	180	180	108,904	2,700	40,960	38,400	15	Available
XCV100-5BG256I	2.5V	5	BGA	256	Ind.	180	180	108,904	2,700	40,960	38,400	15	Available
XCV100-6BG256C	2.5V	6	BGA	256	Com.	180	180	108,904	2,700	40,960	38,400	15	Available
XCV100-6BG256I	2.5V	6	BGA	256	Ind.	180	180	108,904	2,700	40,960	38,400	15	Available
XCV100-4FG256C	2.5V	4	FBGA	256	Com.	176	180	108,904	2,700	40,960	38,400	15	Available

Table 8: Virtex Product Selection Guide (Continued)

Virtex Part No.	Volt.	Speed Grade	Pkg. Type	No. of Pins	Temp. Range	Avail. I/O	Max. Avail. I/O	Sys. Gates	Logic Cells	Block RAM Bits	Max. Select-RAM+ Bits	Sup. I/O Stds.	Status
XCV100-4FG256I	2.5V	4	FBGA	256	Ind.	176	180	108,904	2,700	40,960	38,400	15	Available
XCV100-5FG256C	2.5V	5	FBGA	256	Com.	176	180	108,904	2,700	40,960	38,400	15	Available
XCV100-5FG256I	2.5V	5	FBGA	256	Ind.	176	180	108,904	2,700	40,960	38,400	15	Available
XCV100-6FG256C	2.5V	6	FBGA	256	Com.	176	180	108,904	2,700	40,960	38,400	15	Available
XCV100-6FG256I	2.5V	6	FBGA	256	Ind.	176	180	108,904	2,700	40,960	38,400	15	Available
XCV150-4PQ240C	2.5V	4	PQFP	240	Com.	166	260	164,674	3,888	49,152	55,296	15	Available
XCV150-4PQ240I	2.5V	4	PQFP	240	Ind.	166	260	164,674	3,888	49,152	55,296	15	Available
XCV150-5PQ240C	2.5V	5	PQFP	240	Com.	166	260	164,674	3,888	49,152	55,296	15	Available
XCV150-5PQ240I	2.5V	5	PQFP	240	Ind.	166	260	164,674	3,888	49,152	55,296	15	Available
XCV150-6PQ240C	2.5V	6	PQFP	240	Com.	166	260	164,674	3,888	49,152	55,296	15	Available
XCV150-6PQ240I	2.5V	6	PQFP	240	Ind.	166	260	164,674	3,888	49,152	55,296	15	Available
XCV150-4BG256C	2.5V	4	BGA	256	Com.	180	260	164,674	3,888	49,152	55,296	15	Available
XCV150-4BG256I	2.5V	4	BGA	256	Ind.	180	260	164,674	3,888	49,152	55,296	15	Available
XCV150-5BG256C	2.5V	5	BGA	256	Com.	180	260	164,674	3,888	49,152	55,296	15	Available
XCV150-5BG256I	2.5V	5	BGA	256	Ind.	180	260	164,674	3,888	49,152	55,296	15	Available
XCV150-6BG256C	2.5V	6	BGA	256	Com.	180	260	164,674	3,888	49,152	55,296	15	Available
XCV150-6BG256I	2.5V	6	BGA	256	Ind.	180	260	164,674	3,888	49,152	55,296	15	Available
XCV150-4BG352C	2.5V	4	BGA	352	Com.	260	260	164,674	3,888	49,152	55,296	15	Available
XCV150-4BG352I	2.5V	4	BGA	352	Ind.	260	260	164,674	3,888	49,152	55,296	15	Available
XCV150-5BG352C	2.5V	5	BGA	352	Com.	260	260	164,674	3,888	49,152	55,296	15	Available
XCV150-5BG352I	2.5V	5	BGA	352	Ind.	260	260	164,674	3,888	49,152	55,296	15	Available
XCV150-6BG352C	2.5V	6	BGA	352	Com.	260	260	164,674	3,888	49,152	55,296	15	Available
XCV150-6BG352I	2.5V	6	BGA	352	Ind.	260	260	164,674	3,888	49,152	55,296	15	Available
XCV150-4FG256C	2.5V	4	FBGA	256	Com.	176	260	164,674	3,888	49,152	55,296	15	Available
XCV150-4FG256I	2.5V	4	FBGA	256	Ind.	176	260	164,674	3,888	49,152	55,296	15	Available
XCV150-5FG256C	2.5V	5	FBGA	256	Com.	176	260	164,674	3,888	49,152	55,296	15	Available
XCV150-5FG256I	2.5V	5	FBGA	256	Ind.	176	260	164,674	3,888	49,152	55,296	15	Available
XCV150-6FG256C	2.5V	6	FBGA	256	Com.	176	260	164,674	3,888	49,152	55,296	15	Available
XCV150-6FG256I	2.5V	6	FBGA	256	Ind.	176	260	164,674	3,888	49,152	55,296	15	Available
XCV150-4FG456C	2.5V	4	FBGA	456	Com.	260	260	164,674	3,888	49,152	55,296	15	Available
XCV150-4FG456I	2.5V	4	FBGA	456	Ind.	260	260	164,674	3,888	49,152	55,296	15	Available
XCV150-5FG456C	2.5V	5	FBGA	456	Com.	260	260	164,674	3,888	49,152	55,296	15	Available
XCV150-5FG456I	2.5V	5	FBGA	456	Ind.	260	260	164,674	3,888	49,152	55,296	15	Available
XCV150-6FG456C	2.5V	6	FBGA	456	Com.	260	260	164,674	3,888	49,152	55,296	15	Available
XCV150-6FG456I	2.5V	6	FBGA	456	Ind.	260	260	164,674	3,888	49,152	55,296	15	Available
XCV200-4PQ240C	2.5V	4	PQFP	240	Com.	166	284	236,666	5,292	57,344	75,264	15	Available
XCV200-4PQ240I	2.5V	4	PQFP	240	Ind.	166	284	236,666	5,292	57,344	75,264	15	Available
XCV200-5PQ240C	2.5V	5	PQFP	240	Com.	166	284	236,666	5,292	57,344	75,264	15	Available
XCV200-5PQ240I	2.5V	5	PQFP	240	Ind.	166	284	236,666	5,292	57,344	75,264	15	Available
XCV200-6PQ240C	2.5V	6	PQFP	240	Com.	166	284	236,666	5,292	57,344	75,264	15	Available

Table 8: Virtex Product Selection Guide (Continued)

Virtex Part No.	Volt.	Speed Grade	Pkg. Type	No. of Pins	Temp. Range	Avail. I/O	Max. Avail. I/O	Sys. Gates	Logic Cells	Block RAM Bits	Max. Select-RAM+ Bits	Sup. I/O Stds.	Status
XCV200-6PQ240I	2.5V	6	PQFP	240	Ind.	166	284	236,666	5,292	57,344	75,264	15	Available
XCV200-4BG256C	2.5V	4	BGA	256	Com.	180	284	236,666	5,292	57,344	75,264	15	Available
XCV200-4BG256I	2.5V	4	BGA	256	Ind.	180	284	236,666	5,292	57,344	75,264	15	Available
XCV200-5BG256C	2.5V	5	BGA	256	Com.	180	284	236,666	5,292	57,344	75,264	15	Available
XCV200-5BG256I	2.5V	5	BGA	256	Ind.	180	284	236,666	5,292	57,344	75,264	15	Available
XCV200-6BG256C	2.5V	6	BGA	256	Com.	180	284	236,666	5,292	57,344	75,264	15	Available
XCV200-6BG256I	2.5V	6	BGA	256	Ind.	180	284	236,666	5,292	57,344	75,264	15	Available
XCV200-4BG352C	2.5V	4	BGA	352	Com.	260	284	236,666	5,292	57,344	75,264	15	Available
XCV200-4BG352I	2.5V	4	BGA	352	Ind.	260	284	236,666	5,292	57,344	75,264	15	Available
XCV200-5BG352C	2.5V	5	BGA	352	Com.	260	284	236,666	5,292	57,344	75,264	15	Available
XCV200-5BG352I	2.5V	5	BGA	352	Ind.	260	284	236,666	5,292	57,344	75,264	15	Available
XCV200-6BG352C	2.5V	6	BGA	352	Com.	260	284	236,666	5,292	57,344	75,264	15	Available
XCV200-6BG352I	2.5V	6	BGA	352	Ind.	260	284	236,666	5,292	57,344	75,264	15	Available
XCV200-4FG256C	2.5V	4	FBGA	256	Com.	176	284	236,666	5,292	57,344	75,264	15	Available
XCV200-4FG256I	2.5V	4	FBGA	256	Ind.	176	284	236,666	5,292	57,344	75,264	15	Available
XCV200-5FG256C	2.5V	5	FBGA	256	Com.	176	284	236,666	5,292	57,344	75,264	15	Available
XCV200-5FG256I	2.5V	5	FBGA	256	Ind.	176	284	236,666	5,292	57,344	75,264	15	Available
XCV200-6FG256C	2.5V	6	FBGA	256	Com.	176	284	236,666	5,292	57,344	75,264	15	Available
XCV200-6FG256I	2.5V	6	FBGA	256	Ind.	176	284	236,666	5,292	57,344	75,264	15	Available
XCV200-4FG456C	2.5V	4	FBGA	456	Com.	284	284	236,666	5,292	57,344	75,264	15	Available
XCV200-4FG456I	2.5V	4	FBGA	456	Ind.	284	284	236,666	5,292	57,344	75,264	15	Available
XCV200-5FG456C	2.5V	5	FBGA	456	Com.	284	284	236,666	5,292	57,344	75,264	15	Available
XCV200-5FG456I	2.5V	5	FBGA	456	Ind.	284	284	236,666	5,292	57,344	75,264	15	Available
XCV200-6FG456C	2.5V	6	FBGA	456	Com.	284	284	236,666	5,292	57,344	75,264	15	Available
XCV200-6FG456I	2.5V	6	FBGA	456	Ind.	284	284	236,666	5,292	57,344	75,264	15	Available
XCV300-4PQ240C	2.5V	4	PQFP	240	Com.	166	316	322,970	6,912	65,536	98,304	15	Available
XCV300-4PQ240I	2.5V	4	PQFP	240	Ind.	166	316	322,970	6,912	65,536	98,304	15	Available
XCV300-5PQ240C	2.5V	5	PQFP	240	Com.	166	316	322,970	6,912	65,536	98,304	15	Available
XCV300-5PQ240I	2.5V	5	PQFP	240	Ind.	166	316	322,970	6,912	65,536	98,304	15	Available
XCV300-6PQ240C	2.5V	6	PQFP	240	Com.	166	316	322,970	6,912	65,536	98,304	15	Available
XCV300-6PQ240I	2.5V	6	PQFP	240	Ind.	166	316	322,970	6,912	65,536	98,304	15	Available
XCV300-4BG352C	2.5V	4	BGA	352	Com.	260	316	322,970	6,912	65,536	98,304	15	Available
XCV300-4BG352I	2.5V	4	BGA	352	Ind.	260	316	322,970	6,912	65,536	98,304	15	Available
XCV300-5BG352C	2.5V	5	BGA	352	Com.	260	316	322,970	6,912	65,536	98,304	15	Available
XCV300-5BG352I	2.5V	5	BGA	352	Ind.	260	316	322,970	6,912	65,536	98,304	15	Available
XCV300-6BG352C	2.5V	6	BGA	352	Com.	260	316	322,970	6,912	65,536	98,304	15	Available
XCV300-6BG352I	2.5V	6	BGA	352	Ind.	260	316	322,970	6,912	65,536	98,304	15	Available
XCV300-4BG432C	2.5V	4	BGA	432	Com.	316	316	322,970	6,912	65,536	98,304	15	Available
XCV300-4BG432I	2.5V	4	BGA	432	Ind.	316	316	322,970	6,912	65,536	98,304	15	Available
XCV300-5BG432C	2.5V	5	BGA	432	Com.	316	316	322,970	6,912	65,536	98,304	15	Available

Table 8: Virtex Product Selection Guide (Continued)

Virtex Part No.	Volt.	Speed Grade	Pkg. Type	No. of Pins	Temp. Range	Avail. I/O	Max. Avail. I/O	Sys. Gates	Logic Cells	Block RAM Bits	Max. Select-RAM+ Bits	Sup. I/O Stds.	Status
XCV300-5BG432I	2.5V	5	BGA	432	Ind.	316	316	322,970	6,912	65,536	98,304	15	Available
XCV300-6BG432C	2.5V	6	BGA	432	Com.	316	316	322,970	6,912	65,536	98,304	15	Available
XCV300-6BG432I	2.5V	6	BGA	432	Ind.	316	316	322,970	6,912	65,536	98,304	15	Available
XCV300-4FG456C	2.5V	4	FBGA	456	Com.	312	316	322,970	6,912	65,536	98,304	15	Available
XCV300-4FG456I	2.5V	4	FBGA	456	Ind.	312	316	322,970	6,912	65,536	98,304	15	Available
XCV300-5FG456C	2.5V	5	FBGA	456	Com.	312	316	322,970	6,912	65,536	98,304	15	Available
XCV300-5FG456I	2.5V	5	FBGA	456	Ind.	312	316	322,970	6,912	65,536	98,304	15	Available
XCV300-6FG456C	2.5V	6	FBGA	456	Com.	312	316	322,970	6,912	65,536	98,304	15	Available
XCV300-6FG456I	2.5V	6	FBGA	456	Ind.	312	316	322,970	6,912	65,536	98,304	15	Available
XCV400-4HQ240C	2.5V	4	HQFP	240	Com.	166	404	468,252	10,800	81,920	153,600	15	Available
XCV400-4HQ240I	2.5V	4	HQFP	240	Ind.	166	404	468,252	10,800	81,920	153,600	15	Available
XCV400-5HQ240C	2.5V	5	HQFP	240	Com.	166	404	468,252	10,800	81,920	153,600	15	Available
XCV400-5HQ240I	2.5V	5	HQFP	240	Ind.	166	404	468,252	10,800	81,920	153,600	15	Available
XCV400-6HQ240C	2.5V	6	HQFP	240	Com.	166	404	468,252	10,800	81,920	153,600	15	Available
XCV400-6HQ240I	2.5V	6	HQFP	240	Ind.	166	404	468,252	10,800	81,920	153,600	15	Available
XCV400-4BG432C	2.5V	4	BGA	432	Com.	316	404	468,252	10,800	81,920	153,600	15	Available
XCV400-4BG432I	2.5V	4	BGA	432	Ind.	316	404	468,252	10,800	81,920	153,600	15	Available
XCV400-5BG432C	2.5V	5	BGA	432	Com.	316	404	468,252	10,800	81,920	153,600	15	Available
XCV400-5BG432I	2.5V	5	BGA	432	Ind.	316	404	468,252	10,800	81,920	153,600	15	Available
XCV400-6BG432C	2.5V	6	BGA	432	Com.	316	404	468,252	10,800	81,920	153,600	15	Available
XCV400-6BG432I	2.5V	6	BGA	432	Ind.	316	404	468,252	10,800	81,920	153,600	15	Available
XCV400-4BG560C	2.5V	4	BGA	560	Com.	404	404	468,252	10,800	81,920	153,600	15	Available
XCV400-4BG560I	2.5V	4	BGA	560	Ind.	404	404	468,252	10,800	81,920	153,600	15	Available
XCV400-5BG560C	2.5V	5	BGA	560	Com.	404	404	468,252	10,800	81,920	153,600	15	Available
XCV400-5BG560I	2.5V	5	BGA	560	Ind.	404	404	468,252	10,800	81,920	153,600	15	Available
XCV400-6BG560C	2.5V	6	BGA	560	Com.	404	404	468,252	10,800	81,920	153,600	15	Available
XCV400-6BG560I	2.5V	6	BGA	560	Ind.	404	404	468,252	10,800	81,920	153,600	15	Available
XCV400-4FG676C	2.5V	4	FBGA	676	Com.	404	404	468,252	10,800	81,920	153,600	15	Available
XCV400-4FG676I	2.5V	4	FBGA	676	Ind.	404	404	468,252	10,800	81,920	153,600	15	Available
XCV400-5FG676C	2.5V	5	FBGA	676	Com.	404	404	468,252	10,800	81,920	153,600	15	Available
XCV400-5FG676I	2.5V	5	FBGA	676	Ind.	404	404	468,252	10,800	81,920	153,600	15	Available
XCV400-6FG676C	2.5V	6	FBGA	676	Com.	404	404	468,252	10,800	81,920	153,600	15	Available
XCV400-6FG676I	2.5V	6	FBGA	676	Ind.	404	404	468,252	10,800	81,920	153,600	15	Available
XCV600-4HQ240C	2.5V	4	HQFP	240	Com.	166	512	661,111	15,552	98,304	221,184	15	Available
XCV600-4HQ240I	2.5V	4	HQFP	240	Ind.	166	512	661,111	15,552	98,304	221,184	15	Available
XCV600-5HQ240C	2.5V	5	HQFP	240	Com.	166	512	661,111	15,552	98,304	221,184	15	Available
XCV600-5HQ240I	2.5V	5	HQFP	240	Ind.	166	512	661,111	15,552	98,304	221,184	15	Available
XCV600-6HQ240C	2.5V	6	HQFP	240	Com.	166	512	661,111	15,552	98,304	221,184	15	Available
XCV600-6HQ240I	2.5V	6	HQFP	240	Ind.	166	512	661,111	15,552	98,304	221,184	15	Available
XCV600-4BG432C	2.5V	4	BGA	432	Com.	316	512	661,111	15,552	98,304	221,184	15	Available

Table 8: Virtex Product Selection Guide (Continued)

Virtex Part No.	Volt.	Speed Grade	Pkg. Type	No. of Pins	Temp. Range	Avail. I/O	Max. Avail. I/O	Sys. Gates	Logic Cells	Block RAM Bits	Max. Select-RAM+ Bits	Sup. I/O Stds.	Status
XCV600-4BG432I	2.5V	4	BGA	432	Ind.	316	512	661,111	15,552	98,304	221,184	15	Available
XCV600-5BG432C	2.5V	5	BGA	432	Com.	316	512	661,111	15,552	98,304	221,184	15	Available
XCV600-5BG432I	2.5V	5	BGA	432	Ind.	316	512	661,111	15,552	98,304	221,184	15	Available
XCV600-6BG432C	2.5V	6	BGA	432	Com.	316	512	661,111	15,552	98,304	221,184	15	Available
XCV600-6BG432I	2.5V	6	BGA	432	Ind.	316	512	661,111	15,552	98,304	221,184	15	Available
XCV600-4BG560C	2.5V	4	BGA	560	Com.	404	512	661,111	15,552	98,304	221,184	15	Available
XCV600-4BG560I	2.5V	4	BGA	560	Ind.	404	512	661,111	15,552	98,304	221,184	15	Available
XCV600-5BG560C	2.5V	5	BGA	560	Com.	404	512	661,111	15,552	98,304	221,184	15	Available
XCV600-5BG560I	2.5V	5	BGA	560	Ind.	404	512	661,111	15,552	98,304	221,184	15	Available
XCV600-6BG560C	2.5V	6	BGA	560	Com.	404	512	661,111	15,552	98,304	221,184	15	Available
XCV600-6BG560I	2.5V	6	BGA	560	Ind.	404	512	661,111	15,552	98,304	221,184	15	Available
XCV600-4FG676C	2.5V	4	FBGA	676	Com.	444	512	661,111	15,552	98,304	221,184	15	Available
XCV600-4FG676I	2.5V	4	FBGA	676	Ind.	444	512	661,111	15,552	98,304	221,184	15	Available
XCV600-5FG676C	2.5V	5	FBGA	676	Com.	444	512	661,111	15,552	98,304	221,184	15	Available
XCV600-5FG676I	2.5V	5	FBGA	676	Ind.	444	512	661,111	15,552	98,304	221,184	15	Available
XCV600-6FG676C	2.5V	6	FBGA	676	Com.	444	512	661,111	15,552	98,304	221,184	15	Available
XCV600-6FG676I	2.5V	6	FBGA	676	Ind.	444	512	661,111	15,552	98,304	221,184	15	Available
XCV600-4FG680C	2.5V	4	FBGA	680	Com.	512	512	661,111	15,552	98,304	221,184	15	Available
XCV600-4FG680I	2.5V	4	FBGA	680	Ind.	512	512	661,111	15,552	98,304	221,184	15	Available
XCV600-5FG680C	2.5V	5	FBGA	680	Com.	512	512	661,111	15,552	98,304	221,184	15	Available
XCV600-5FG680I	2.5V	5	FBGA	680	Ind.	512	512	661,111	15,552	98,304	221,184	15	Available
XCV600-6FG680C	2.5V	6	FBGA	680	Com.	512	512	661,111	15,552	98,304	221,184	15	Available
XCV600-6FG680I	2.5V	6	FBGA	680	Ind.	512	512	661,111	15,552	98,304	221,184	15	Available
XCV800-4HQ240C	2.5V	4	HQFP	240	Com.	166	512	888,439	21,168	114,688	301,056	15	Available
XCV800-4HQ240I	2.5V	4	HQFP	240	Ind.	166	512	888,439	21,168	114,688	301,056	15	Available
XCV800-5HQ240C	2.5V	5	HQFP	240	Com.	166	512	888,439	21,168	114,688	301,056	15	Available
XCV800-5HQ240I	2.5V	5	HQFP	240	Ind.	166	512	888,439	21,168	114,688	301,056	15	Available
XCV800-6HQ240C	2.5V	6	HQFP	240	Com.	166	512	888,439	21,168	114,688	301,056	15	Available
XCV800-6HQ240I	2.5V	6	HQFP	240	Ind.	166	512	888,439	21,168	114,688	301,056	15	Available
XCV800-4BG432C	2.5V	4	BGA	432	Com.	316	512	888,439	21,168	114,688	301,056	15	Available
XCV800-4BG432I	2.5V	4	BGA	432	Ind.	316	512	888,439	21,168	114,688	301,056	15	Available
XCV800-5BG432C	2.5V	5	BGA	432	Com.	316	512	888,439	21,168	114,688	301,056	15	Available
XCV800-5BG432I	2.5V	5	BGA	432	Ind.	316	512	888,439	21,168	114,688	301,056	15	Available
XCV800-6BG432C	2.5V	6	BGA	432	Com.	316	512	888,439	21,168	114,688	301,056	15	Available
XCV800-6BG432I	2.5V	6	BGA	432	Ind.	316	512	888,439	21,168	114,688	301,056	15	Available
XCV800-4BG560C	2.5V	4	BGA	560	Com.	404	512	888,439	21,168	114,688	301,056	15	Available
XCV800-4BG560I	2.5V	4	BGA	560	Ind.	404	512	888,439	21,168	114,688	301,056	15	Available
XCV800-5BG560C	2.5V	5	BGA	560	Com.	404	512	888,439	21,168	114,688	301,056	15	Available
XCV800-5BG560I	2.5V	5	BGA	560	Ind.	404	512	888,439	21,168	114,688	301,056	15	Available
XCV800-6BG560C	2.5V	6	BGA	560	Com.	404	512	888,439	21,168	114,688	301,056	15	Available

Table 8: Virtex Product Selection Guide (Continued)

Virtex Part No.	Volt.	Speed Grade	Pkg. Type	No. of Pins	Temp. Range	Avail. I/O	Max. Avail. I/O	Sys. Gates	Logic Cells	Block RAM Bits	Max. Select-RAM+ Bits	Sup. I/O Stds.	Status
XCV800-6BG560I	2.5V	6	BGA	560	Ind.	404	512	888,439	21,168	114,688	301,056	15	Available
XCV800-4FG676C	2.5V	4	FBGA	676	Com.	444	512	888,439	21,168	114,688	301,056	15	Available
XCV800-4FG676I	2.5V	4	FBGA	676	Ind.	444	512	888,439	21,168	114,688	301,056	15	Available
XCV800-5FG676C	2.5V	5	FBGA	676	Com.	444	512	888,439	21,168	114,688	301,056	15	Available
XCV800-5FG676I	2.5V	5	FBGA	676	Ind.	444	512	888,439	21,168	114,688	301,056	15	Available
XCV800-6FG676C	2.5V	6	FBGA	676	Com.	444	512	888,439	21,168	114,688	301,056	15	Available
XCV800-6FG676I	2.5V	6	FBGA	676	Ind.	444	512	888,439	21,168	114,688	301,056	15	Available
XCV800-4FG680C	2.5V	4	FBGA	680	Com.	512	512	888,439	21,168	114,688	301,056	15	Available
XCV800-4FG680I	2.5V	4	FBGA	680	Ind.	512	512	888,439	21,168	114,688	301,056	15	Available
XCV800-5FG680C	2.5V	5	FBGA	680	Com.	512	512	888,439	21,168	114,688	301,056	15	Available
XCV800-5FG680I	2.5V	5	FBGA	680	Ind.	512	512	888,439	21,168	114,688	301,056	15	Available
XCV800-6FG680C	2.5V	6	FBGA	680	Com.	512	512	888,439	21,168	114,688	301,056	15	Available
XCV800-6FG680I	2.5V	6	FBGA	680	Ind.	512	512	888,439	21,168	114,688	301,056	15	Available
XCV1000-4BG560C	2.5V	4	BGA	560	Com.	404	512	1,124,022	27,648	131,072	393,216	15	Available
XCV1000-4BG560I	2.5V	4	BGA	560	Ind.	404	512	1,124,022	27,648	131,072	393,216	15	Available
XCV1000-5BG560C	2.5V	5	BGA	560	Com.	404	512	1,124,022	27,648	131,072	393,216	15	Available
XCV1000-5BG560I	2.5V	5	BGA	560	Ind.	404	512	1,124,022	27,648	131,072	393,216	15	Available
XCV1000-6BG560C	2.5V	6	BGA	560	Com.	404	512	1,124,022	27,648	131,072	393,216	15	Available
XCV1000-6BG560I	2.5V	6	BGA	560	Ind.	404	512	1,124,022	27,648	131,072	393,216	15	Available
XCV1000-4FG680C	2.5V	4	FBGA	680	Com.	512	512	1,124,022	27,648	131,072	393,216	15	Available
XCV1000-4FG680I	2.5V	4	FBGA	680	Ind.	512	512	1,124,022	27,648	131,072	393,216	15	Available
XCV1000-5FG680C	2.5V	5	FBGA	680	Com.	512	512	1,124,022	27,648	131,072	393,216	15	Available
XCV1000-5FG680I	2.5V	5	FBGA	680	Ind.	512	512	1,124,022	27,648	131,072	393,216	15	Available
XCV1000-6FG680C	2.5V	6	FBGA	680	Com.	512	512	1,124,022	27,648	131,072	393,216	15	Available
XCV1000-6FG680I	2.5V	6	FBGA	680	Ind.	512	512	1,124,022	27,648	131,072	393,216	15	Available

Table 9: Virtex Supported Select I/O Standard

I/O Standard	Input Reference Voltage (V _{REF})	Output Source Voltage (V _{CCO})	Board Term. Voltage (V _{TT})	5V. Tol.
LVTTTL 2 – 24 mA	N/A	3.3	N/A	Yes
LVC MOS2	N/A	2.5	N/A	Yes
PCI, 5 V	N/A	3.3	N/A	Yes
PCI, 3.3 V	N/A	3.3	N/A	No
GTL	0.8	N/A	1.2	No
GTL+	1	N/A	1.5	No
HSTL Class I	0.75	1.5	0.75	No
HSTL Class III	0.9	1.5	1.5	No
HSTL Class IV	0.9	1.5	1.5	No
SSTL3 Class I & II	1.5	3.3	1.5	No

Table 9: Virtex Supported Select I/O Standard

I/O Standard	Input Reference Voltage (V_{REF})	Output Source Voltage (V_{CCO})	Board Term. Voltage (V_{TT})	5V. Tol.
SSTL2 Class I & II	1.25	2.5	1.25	No
CTT	1.5	3.3	1.5	No
AGP	1.32	3.3	N/A	No

Spartan Products Selection Guide

Spartan-II Products

Table 10: Spartan-II Product Selection Guide

Spartan-II Part No.	Volt.	Speed Grade	Pkg. Type	No. of Pins	Temp. Range	System Perform.	Avail. User I/O	Max. Avail. User I/O	Logic Cells	System Gates (Logic + RAM)	Total CLBs	Total Dist. RAM Bits	Total Block RAM Bits	I/O Stds. Avail.	Status
XC2S15-5VQ100C	2.5V	5	VQFP	100	Com.	150 MHz	60	86	432	15,000	96	6,144	16K	16	Available
XC2S15-5VQ100I	2.5V	5	VQFP	100	Ind.	150 MHz	60	86	432	15,000	96	6,144	16K	16	Available
XC2S15-6VQ100C	2.5V	6	VQFP	100	Com.	200 MHz	60	86	432	15,000	96	6,144	16K	16	Available
XC2S15-5TQ144C	2.5V	5	TQFP	144	Com.	150 MHz	86	86	432	15,000	96	6,144	16K	16	Available
XC2S15-5TQ144I	2.5V	5	TQFP	144	Ind.	150 MHz	86	86	432	15,000	96	6,144	16K	16	Available
XC2S15-6TQ144C	2.5V	6	TQFP	144	Com.	200 MHz	86	86	432	15,000	96	6,144	16K	16	Available
XC2S15-5CS144C	2.5V	5	CSP	144	Com.	150 MHz	86	86	432	15,000	96	6,144	16K	16	Available
XC2S15-5CS144I	2.5V	5	CSP	144	Ind.	150 MHz	86	86	432	15,000	96	6,144	16K	16	Available
XC2S15-6CS144C	2.5V	6	CSP	144	Com.	200 MHz	86	86	432	15,000	96	6,144	16K	16	Available
XC2S30-5VQ100C	2.5V	5	VQFP	100	Com.	150 MHz	60	132	972	30,000	216	13,824	24K	16	Available
XC2S30-5VQ100I	2.5V	5	VQFP	100	Ind.	150 MHz	60	132	972	30,000	216	13,824	24K	16	Available
XC2S30-6VQ100C	2.5V	6	VQFP	100	Com.	200 MHz	60	132	972	30,000	216	13,824	24K	16	Available
XC2S30-5TQ144C	2.5V	5	TQFP	144	Com.	150 MHz	92	132	972	30,000	216	13,824	24K	16	Available
XC2S30-5TQ144I	2.5V	5	TQFP	144	Ind.	150 MHz	92	132	972	30,000	216	13,824	24K	16	Available
XC2S30-6TQ144C	2.5V	6	TQFP	144	Com.	200 MHz	92	132	972	30,000	216	13,824	24K	16	Available
XC2S30-5CS144C	2.5V	5	CSP	144	Com.	150 MHz	92	132	972	30,000	216	13,824	24K	16	Available
XC2S30-5CS144I	2.5V	5	CSP	144	Ind.	150 MHz	92	132	972	30,000	216	13,824	24K	16	Available
XC2S30-6CS144C	2.5V	6	CSP	144	Com.	200 MHz	92	132	972	30,000	216	13,824	24K	16	Available
XC2S30-5PQ208C	2.5V	5	PQFP	208	Com.	150 MHz	132	132	972	30,000	216	13,824	24K	16	Available
XC2S30-5PQ208I	2.5V	5	PQFP	208	Ind.	150 MHz	132	132	972	30,000	216	13,824	24K	16	Available
XC2S30-6PQ208C	2.5V	6	PQFP	208	Com.	200 MHz	132	132	972	30,000	216	13,824	24K	16	Available
XC2S50-5TQ144C	2.5V	5	TQFP	144	Com.	150 MHz	92	176	1,728	50,000	384	24,576	32K	16	Available
XC2S50-5TQ144I	2.5V	5	TQFP	144	Ind.	150 MHz	92	176	1,728	50,000	384	24,576	32K	16	Available
XC2S50-6TQ144C	2.5V	6	TQFP	144	Com.	200 MHz	92	176	1,728	50,000	384	24,576	32K	16	Available
XC2S50-5PQ208C	2.5V	5	PQFP	208	Com.	150 MHz	140	176	1,728	50,000	384	24,576	32K	16	Available
XC2S50-5PQ208I	2.5V	5	PQFP	208	Ind.	150 MHz	140	176	1,728	50,000	384	24,576	32K	16	Available
XC2S50-6PQ208C	2.5V	6	PQFP	208	Com.	200 MHz	140	176	1,728	50,000	384	24,576	32K	16	Available
XC2S50-5FG256C	2.5V	5	FBGA	256	Com.	150 MHz	176	176	1,728	50,000	384	24,576	32K	16	Available
XC2S50-5FG256I	2.5V	5	FBGA	256	Ind.	150 MHz	176	176	1,728	50,000	384	24,576	32K	16	Available

Table 10: Spartan-II Product Selection Guide (Continued)

Spartan-II Part No.	Volt.	Speed Grade	Pkg. Type	No. of Pins	Temp. Range	System Perform.	Avail. User I/O	Max. Avail. User I/O	Logic Cells	System Gates (Logic + RAM)	Total CLBs	Total Dist. RAM Bits	Total Block RAM Bits	I/O Stds. Avail.	Status
XC2S50-6FG256C	2.5V	6	FBGA	256	Com.	200 MHz	176	176	1,728	50,000	384	24,576	32K	16	Available
XC2S100-5TQ144C	2.5V	5	TQFP	144	Com.	150 MHz	92	196	2,700	100,000	600	38,400	40K	16	Available
XC2S100-5TQ144I	2.5V	5	TQFP	144	Ind.	150 MHz	92	196	2,700	100,000	600	38,400	40K	16	Available
XC2S100-6TQ144C	2.5V	6	TQFP	144	Com.	200 MHz	92	196	2,700	100,000	600	38,400	40K	16	Available
XC2S100-5PQ208C	2.5V	5	PQFP	208	Com.	150 MHz	140	196	2,700	100,000	600	38,400	40K	16	Available
XC2S100-5PQ208I	2.5V	5	PQFP	208	Ind.	150 MHz	140	196	2,700	100,000	600	38,400	40K	16	Available
XC2S100-6PQ208C	2.5V	6	PQFP	208	Com.	200 MHz	140	196	2,700	100,000	600	38,400	40K	16	Available
XC2S100-5FG256C	2.5V	5	FBGA	256	Com.	150 MHz	176	196	2,700	100,000	600	38,400	40K	16	Available
XC2S100-5FG256I	2.5V	5	FBGA	256	Ind.	150 MHz	176	196	2,700	100,000	600	38,400	40K	16	Available
XC2S100-6FG256C	2.5V	6	FBGA	256	Com.	200 MHz	176	196	2,700	100,000	600	38,400	40K	16	Available
XC2S100-5FG456C	2.5V	5	FBGA	456	Com.	150 MHz	196	196	2,700	100,000	600	38,400	40K	16	Available
XC2S100-5FG456I	2.5V	5	FBGA	456	Ind.	150 MHz	196	196	2,700	100,000	600	38,400	40K	16	Available
XC2S100-6FG456C	2.5V	6	FBGA	456	Com.	200 MHz	196	196	2,700	100,000	600	38,400	40K	16	Available
XC2S150-5PQ208C	2.5V	5	PQFP	208	Com.	150 MHz	140	260	3,888	150,000	864	55,296	48K	16	Available
XC2S150-5PQ208I	2.5V	5	PQFP	208	Ind.	150 MHz	140	260	3,888	150,000	864	55,296	48K	16	Available
XC2S150-6PQ208C	2.5V	6	PQFP	208	Com.	200 MHz	140	260	3,888	150,000	864	55,296	48K	16	Available
XC2S150-5FG256C	2.5V	5	FBGA	256	Com.	150 MHz	176	260	3,888	150,000	864	55,296	48K	16	Available
XC2S150-5FG256I	2.5V	5	FBGA	256	Ind.	150 MHz	176	260	3,888	150,000	864	55,296	48K	16	Available
XC2S150-6FG256C	2.5V	6	FBGA	256	Com.	200 MHz	176	260	3,888	150,000	864	55,296	48K	16	Available
XC2S100-5FG456C	2.5V	5	FBGA	456	Com.	150 MHz	260	260	3,888	150,000	864	55,296	48K	16	Available
XC2S150-5FG456I	2.5V	5	FBGA	456	Ind.	150 MHz	260	260	3,888	150,000	864	55,296	48K	16	Available
XC2S150-6FG456C	2.5V	6	FBGA	456	Com.	200 MHz	260	260	3,888	150,000	864	55,296	48K	16	Available
XC2S200-5PQ208C	2.5V	5	PQFP	208	Com.	150 MHz	140	284	5,292	200,000	1,176	75,264	56K	16	Available
XC2S200-5PQ208I	2.5V	5	PQFP	208	Ind.	150 MHz	140	284	5,292	200,000	1,176	75,264	56K	16	Available
XC2S200-6PQ208C	2.5V	6	PQFP	208	Com.	200 MHz	140	284	5,292	200,000	1,176	75,264	56K	16	Available
XC2S200-5FG256C	2.5V	5	FBGA	256	Com.	150 MHz	176	284	5,292	200,000	1,176	75,264	56K	16	Available
XC2S200-5FG256I	2.5V	5	FBGA	256	Ind.	150 MHz	176	284	5,292	200,000	1,176	75,264	56K	16	Available
XC2S200-6FG256C	2.5V	6	FBGA	256	Com.	200 MHz	176	284	5,292	200,000	1,176	75,264	56K	16	Available
XC2S200-5FG456C	2.5V	5	FBGA	456	Com.	150 MHz	284	284	5,292	200,000	1,176	75,264	56K	16	Available
XC2S200-5FG456I	2.5V	5	FBGA	456	Ind.	150 MHz	284	284	5,292	200,000	1,176	75,264	56K	16	Available
XC2S200-6FG456C	2.5V	6	FBGA	456	Com.	200 MHz	284	284	5,292	200,000	1,176	75,264	56K	16	Available

Notes:

1. All user I/O counts do not include the four global clock/user input pins.

Table 11: Spartan-II I/O Standards Available

I/O Standard	Input Reference Voltage (V_{REF})	Output Source Voltage (V_{CCO})	Board Term. Voltage (V_{TT})
LVTTTL (2-24 mA)	N/A	3.3	N/A
LVC MOS2	N/A	2.5	N/A
PCI (3V, 5V) 33 MHz/66 MHz)	N/A	3.3	N/A
GTL	0.8	N/A	1.2
GTL+	1.0	N/A	1.5
HSTL Class I	0.75	1.5	0.75
HSTL Class III	0.9	1.5	1.5
HSTL Class IV	0.9	1.5	1.5
SSTL3 Class I and II	1.5	3.3	1.5
SSTL2 Class I and II	1.25	2.5	1.25
CTT	1.5	3.3	1.5
AGP-2X	1.32	3.3	N/A

Spartan-XL Products

Table 12: Spartan-XL Product Selection Guide

Spartan-XL Part No.	Volt.	Speed Grade	Pkg. Type	No. of Pins	Temp. Range	System Perform.	Avail. User I/O	Max. Avail. User I/O	Logic Cells	Max. Logic Gates	System Gates (Logic + RAM)	Total CLBs	No. of Flip-Flops	Max. RAM Bits	I/O Stds. Avail.	Status
XCS05XL-4PC84C	3.3V	4	PLCC	84	Com.	80 MHz	61	77	238	3,000	2K-5K	100	360	3,200	5	Available
XCS05XL-5PC84C	3.3V	5	PLCC	84	Com.	100 MHz	61	77	238	3,000	2K-5K	100	360	3,200	5	Available
XCS05XL-4VQ100C	3.3V	4	VQFP	100	Com.	80 MHz	77	77	238	3,000	2K-5K	100	360	3,200	5	Available
XCS05XL-4VQ100I	3.3V	4	VQFP	100	Ind.	80 MHz	77	77	238	3,000	2K-5K	100	360	3,200	5	Available
XCS05XL-5VQ100C	3.3V	5	VQFP	100	Com.	100 MHz	77	77	238	3,000	2K-5K	100	360	3,200	5	Available
XCS10XL-4PC84C	3.3V	4	PLCC	84	Com.	80 MHz	61	112	466	5,000	3K-10K	196	616	6,272	5	Available
XCS10XL-5PC84C	3.3V	5	PLCC	84	Com.	100 MHz	61	112	466	5,000	3K-10K	196	616	6,272	5	Available
XCS10XL-4VQ100C	3.3V	4	VQFP	100	Com.	80 MHz	77	112	466	5,000	3K-10K	196	616	6,272	5	Available
XCS10XL-4VQ100I	3.3V	4	VQFP	100	Ind.	80 MHz	77	112	466	5,000	3K-10K	196	616	6,272	5	Available
XCS10XL-5VQ100C	3.3V	5	VQFP	100	Com.	100 MHz	77	112	466	5,000	3K-10K	196	616	6,272	5	Available
XCS10XL-4CS144C	3.3V	4	CSP	144	Com.	80 MHz	112	112	466	5,000	3K-10K	196	616	6,272	5	Available
XCS10XL-5CS144C	3.3V	5	CSP	144	Com.	100 MHz	112	112	466	5,000	3K-10K	196	616	6,272	5	Available
XCS10XL-4TQ144C	3.3V	4	TQFP	144	Com.	80 MHz	112	112	466	5,000	3K-10K	196	616	6,272	5	Available
XCS10XL-5TQ144C	3.3V	5	TQFP	144	Com.	100 MHz	112	112	466	5,000	3K-10K	196	616	6,272	5	Available
XCS20XL-4VQ100C	3.3V	4	VQFP	100	Com.	80 MHz	77	160	950	10,000	7K-20K	400	1,120	12,800	5	Available
XCS20XL-4VQ100I	3.3V	4	VQFP	100	Ind.	80 MHz	77	160	950	10,000	7K-20K	400	1,120	12,800	5	Available
XCS20XL-5VQ100C	3.3V	5	VQFP	100	Com.	100 MHz	77	160	950	10,000	7K-20K	400	1,120	12,800	5	Available
XCS20XL-4CS144C	3.3V	4	CSP	144	Com.	80 MHz	113	160	950	10,000	7K-20K	400	1,120	12,800	5	Available
XCS20XL-5CS144C	3.3V	5	CSP	144	Com.	100 MHz	113	160	950	10,000	7K-20K	400	1,120	12,800	5	Available
XCS20XL-4TQ144C	3.3V	4	TQFP	144	Com.	80 MHz	113	160	950	10,000	7K-20K	400	1,120	12,800	5	Available
XCS20XL-4TQ144I	3.3V	4	TQFP	144	Ind.	80 MHz	113	160	950	10,000	7K-20K	400	1,120	12,800	5	Available
XCS20XL-5TQ144C	3.3V	5	TQFP	144	Com.	100 MHz	113	160	950	10,000	7K-20K	400	1,120	12,800	5	Available

Table 12: Spartan-XL Product Selection Guide (Continued)

Spartan-XL Part No.	Volt.	Speed Grade	Pkg. Type	No. of Pins	Temp. Range	System Perform.	Avail. User I/O	Max. Avail. User I/O	Logic Cells	Max. Logic Gates	System Gates (Logic + RAM)	Total CLBs	No. of Flip-Flops	Max. RAM Bits	I/O Stds. Avail.	Status
XCS20XL-4PQ208C	3.3V	4	PQFP	208	Com.	80 MHz	160	160	950	10,000	7K-20K	400	1,120	12,800	5	Available
XCS20XL-4PQ208I	3.3V	4	PQFP	208	Ind.	80 MHz	160	160	950	10,000	7K-20K	400	1,120	12,800	5	Available
XCS20XL-5PQ208C	3.3V	5	PQFP	208	Com.	100 MHz	160	160	950	10,000	7K-20K	400	1,120	12,800	5	Available
XCS30XL-4VQ100C	3.3V	4	VQFP	100	Com.	80 MHz	77	192	1,368	13,000	10K-30K	576	1,536	18,432	5	Available
XCS30XL-5VQ100C	3.3V	5	VQFP	100	Com.	100 MHz	77	192	1,368	13,000	10K-30K	576	1,536	18,432	5	Available
XCS30XL-4TQ144C	3.3V	4	TQFP	144	Com.	80 MHz	113	192	1,368	13,000	10K-30K	576	1,536	18,432	5	Available
XCS30XL-4TQ144I	3.3V	4	TQFP	144	Ind.	80 MHz	113	192	1,368	13,000	10K-30K	576	1,536	18,432	5	Available
XCS30XL-5TQ144C	3.3V	5	TQFP	144	Com.	100 MHz	113	192	1,368	13,000	10K-30K	576	1,536	18,432	5	Available
XCS30XL-4PQ208C	3.3V	4	PQFP	208	Com.	80 MHz	169	192	1,368	13,000	10K-30K	576	1,536	18,432	5	Available
XCS30XL-4PQ208I	3.3V	4	PQFP	208	Ind.	80 MHz	169	192	1,368	13,000	10K-30K	576	1,536	18,432	5	Available
XCS30XL-5PQ208C	3.3V	5	PQFP	208	Com.	100 MHz	169	192	1,368	13,000	10K-30K	576	1,536	18,432	5	Available
XCS30XL-4PQ240C	3.3V	4	PQFP	240	Com.	80 MHz	192	192	1,368	13,000	10K-30K	576	1,536	18,432	5	Available
XCS30XL-5PQ240C	3.3V	5	PQFP	240	Com.	100 MHz	192	192	1,368	13,000	10K-30K	576	1,536	18,432	5	Available
XCS30XL-4BG256C	3.3V	4	BGA	256	Com.	80 MHz	192	192	1,368	13,000	10K-30K	576	1,536	18,432	5	Available
XCS30XL-5BG256C	3.3V	5	BGA	256	Com.	100 MHz	192	192	1,368	13,000	10K-30K	576	1,536	18,432	5	Available
XCS30XL-4CS280C	3.3V	4	CSP	280	Com.	80 MHz	192	192	1,368	13,000	10K-30K	576	1,536	18,432	5	Available
XCS30XL-5CS280C	3.3V	5	CSP	280	Com.	100 MHz	192	192	1,368	13,000	10K-30K	576	1,536	18,432	5	Available
XCS40XL-4PQ208C	3.3V	4	PQFP	208	Com.	80 MHz	169	224	1,862	20,000	13K-40K	784	2,016	25,088	5	Available
XCS40XL-4PQ208I	3.3V	4	PQFP	208	Ind.	80 MHz	169	224	1,862	20,000	13K-40K	784	2,016	25,088	5	Available
XCS40XL-5PQ208C	3.3V	5	PQFP	208	Com.	100 MHz	169	224	1,862	20,000	13K-40K	784	2,016	25,088	5	Available
XCS40XL-4PQ240C	3.3V	4	PQFP	240	Com.	80 MHz	192	224	1,862	20,000	13K-40K	784	2,016	25,088	5	Available
XCS40XL-5PQ240C	3.3V	5	PQFP	240	Com.	100 MHz	192	224	1,862	20,000	13K-40K	784	2,016	25,088	5	Available
XCS40XL-4BG256C	3.3V	4	BGA	256	Com.	80 MHz	205	224	1,862	20,000	13K-40K	784	2,016	25,088	5	Available
XCS40XL-5BG256C	3.3V	5	BGA	256	Com.	100 MHz	205	224	1,862	20,000	13K-40K	784	2,016	25,088	5	Available
XCS40XL-4CS280C	3.3V	4	CSP	280	Com.	80 MHz	224	224	1,862	20,000	13K-40K	784	2,016	25,088	5	Available
XCS40XL-5CS280C	3.3V	5	CSP	280	Com.	100 MHz	224	224	1,862	20,000	13K-40K	784	2,016	25,088	5	Available

Table 13: Spartan-XL I/O Standards

Signaling Standard	V _{CC} Clamping	Output Drive	V _{IH} MAX	V _{IH} MIN	V _{IL} MAX	V _{OH} MIN	V _{OL} MAX
TTL	Not allowed	12/24 mA	5.5	2	0.8	2.4	0.4
LVTTTL	OK	12/24 mA	3.6	2	0.8	2.4	0.4
PCI5V	Not allowed	24 mA	5.5	2	0.8	2.4	0.4
PCI3V	Required	12 mA	3.6	50% of V _{CC}	30% of V _{CC}	90% of V _{CC}	10% of V _{CC}
LVC MOS 3V	OK	12/24 mA	3.6	50% of V _{CC}	30% of V _{CC}	90% of V _{CC}	10% of V _{CC}

Spartan Products

Table 14: Spartan Product Selection Guide

Spartan Part No.	Volt.	Speed Grade	Pkg. Type	No. of Pins	Temp. Range	System Perf.	Avail. User I/O	Max Avail. User I/O	Logic Cells	Max. Logic Gates	System Gates (Logic + RAM)	Total CLBs	No. Of Flip-Flops	Max. RAM Bits	I/O Stds. Avail.	Status
XCS05-3PC84C	5V	3	PLCC	84	Com.	60 MHz	61	77	238	3,000	2K-5K	100	360	3,200	3	Available
XCS05-4PC84C	5V	4	PLCC	84	Com.	80 MHz	61	77	238	3,000	2K-5K	100	360	3,200	3	Available
XCS05-3VQ100C	5V	3	VQFP	100	Com.	60 MHz	77	77	238	3,000	2K-5K	100	360	3,200	3	Available
XCS05-3VQ100I	5V	3	VQFP	100	Ind.	60 MHz	77	77	238	3,000	2K-5K	100	360	3,200	3	Available
XCS05-4VQ100C	5V	4	VQFP	100	Com.	80 MHz	77	77	238	3,000	2K-5K	100	360	3,200	3	Available
XCS10-3PC84C	5V	3	PLCC	84	Com.	60 MHz	61	112	466	5,000	3K-10K	196	616	6,272	3	Available
XCS10-4PC84C	5V	4	PLCC	84	Com.	80 MHz	61	112	466	5,000	3K-10K	196	616	6,272	3	Available
XCS10-3VQ100C	5V	3	VQFP	100	Com.	60 MHz	77	112	466	5,000	3K-10K	196	616	6,272	3	Available
XCS10-3VQ100I	5V	3	VQFP	100	Ind.	60 MHz	77	112	466	5,000	3K-10K	196	616	6,272	3	Available
XCS10-4VQ100C	5V	4	VQFP	100	Com.	80 MHz	77	112	466	5,000	3K-10K	196	616	6,272	3	Available
XCS10-3TQ144C	5V	3	TQFP	144	Com.	60 MHz	112	112	466	5,000	3K-10K	196	616	6,272	3	Available
XCS10-4TQ144C	5V	4	TQFP	144	Com.	80 MHz	112	112	466	5,000	3K-10K	196	616	6,272	3	Available
XCS20-3VQ100C	5V	3	VQFP	100	Com.	60 MHz	77	160	950	10,000	7K-20K	400	1,120	12,800	3	Available
XCS20-4VQ100C	5V	4	VQFP	100	Com.	80 MHz	77	160	950	10,000	7K-20K	400	1,120	12,800	3	Available
XCS20-3TQ144C	5V	3	TQFP	144	Com.	60 MHz	113	160	950	10,000	7K-20K	400	1,120	12,800	3	Available
XCS20-3TQ144I	5V	3	TQFP	144	Ind.	60 MHz	113	160	950	10,000	7K-20K	400	1,120	12,800	3	Available
XCS20-4TQ144C	5V	4	TQFP	144	Com.	80 MHz	113	160	950	10,000	7K-20K	400	1,120	12,800	3	Available
XCS20-3PQ208C	5V	3	PQFP	208	Com.	60 MHz	160	160	950	10,000	7K-20K	400	1,120	12,800	3	Available
XCS20-3PQ208I	5V	3	PQFP	208	Ind.	60 MHz	160	160	950	10,000	7K-20K	400	1,120	12,800	3	Available
XCS20-4PQ208C	5V	4	PQFP	208	Com.	80 MHz	160	160	950	10,000	7K-20K	400	1,120	12,800	3	Available
XCS30-3VQ100C	5V	3	VQFP	100	Com.	60 MHz	77	192	1,368	13,000	10K-30K	576	1,536	18,432	3	Available
XCS30-4VQ100C	5V	4	VQFP	100	Com.	80 MHz	77	192	1,368	13,000	10K-30K	576	1,536	18,432	3	Available
XCS30-3TQ144C	5V	3	TQFP	144	Com.	60 MHz	113	192	1,368	13,000	10K-30K	576	1,536	18,432	3	Available
XCS30-3TQ144I	5V	3	TQFP	144	Ind.	60 MHz	113	192	1,368	13,000	10K-30K	576	1,536	18,432	3	Available
XCS30-4TQ144C	5V	4	TQFP	144	Com.	80 MHz	113	192	1,368	13,000	10K-30K	576	1,536	18,432	3	Available
XCS30-3PQ208C	5V	3	PQFP	208	Com.	60 MHz	169	192	1,368	13,000	10K-30K	576	1,536	18,432	3	Available
XCS30-3PQ208I	5V	3	PQFP	208	Ind.	60 MHz	169	192	1,368	13,000	10K-30K	576	1,536	18,432	3	Available
XCS30-4PQ208C	5V	4	PQFP	208	Com.	80 MHz	169	192	1,368	13,000	10K-30K	576	1,536	18,432	3	Available
XCS30-3PQ240C	5V	3	PQFP	240	Com.	60 MHz	192	192	1,368	13,000	10K-30K	576	1,536	18,432	3	Available
XCS30-4PQ240C	5V	4	PQFP	240	Com.	80 MHz	192	192	1,368	13,000	10K-30K	576	1,536	18,432	3	Available
XCS30-3BG256C	5V	3	BGA	256	Com.	60 MHz	192	192	1,368	13,000	10K-30K	576	1,536	18,432	3	Available
XCS30-4BG256C	5V	4	BGA	256	Com.	80 MHz	192	192	1,368	13,000	10K-30K	576	1,536	18,432	3	Available
XCS40-3PQ208C	5V	3	PQFP	208	Com.	60 MHz	169	205	1,862	20,000	13K-40K	784	2,016	25,088	3	Available
XCS40-3PQ208I	5V	3	PQFP	208	Ind.	60 MHz	169	205	1,862	20,000	13K-40K	784	2,016	25,088	3	Available
XCS40-4PQ208C	5V	4	PQFP	208	Com.	80 MHz	169	205	1,862	20,000	13K-40K	784	2,016	25,088	3	Available
XCS40-3PQ240C	5V	3	PQFP	240	Com.	60 MHz	192	205	1,862	20,000	13K-40K	784	2,016	25,088	3	Available

Table 14: Spartan Product Selection Guide

Spartan Part No.	Volt.	Speed Grade	Pkg. Type	No. of Pins	Temp. Range	System Perf.	Avail. User I/O	Max Avail. User I/O	Logic Cells	Max. Logic Gates	System Gates (Logic + RAM)	Total CLBs	No. Of Flip-Flops	Max. RAM Bits	I/O Stds. Avail.	Status
XCS40-4PQ240C	5V	4	PQFP	240	Com.	80 MHz	192	205	1,862	20,000	13K-40K	784	2,016	25,088	3	Available
XCS40-3BG256C	5V	3	BGA	256	Com.	60 MHz	205	205	1,862	20,000	13K-40K	784	2,016	25,088	3	Available
XCS40-4BG256C	5V	4	BGA	256	Com.	80 MHz	205	205	1,862	20,000	13K-40K	784	2,016	25,088	3	Available

Table 15: Spartan I/O Standards

Signaling Standard	Output Drive	V _{IH} MAX	V _{IH} MIN	V _{IL} MAX	V _{OH} MIN	V _{OL} MAX
TTL	12 mA	5.5	2	0.8	2.4	0.4
CMOS	12 mA	5.5	70% of VCC	20% of VCC	VCC – 0.5	0.4
PCI5V	12 mA	5.5	2	0.8	2.4	0.4

Configuration Solutions Product Selection Guide

System ACE Controller

Table 16: System ACE Controller Product Selection Guide

System ACE Part No.	Supply Voltage (V _{CC})	Output Voltage (V _{CCO})	CompactFlash Interface	Pkg. Type	No. of Pins	Temp. Range
XCCACE-TQ144I	3.3V	2.5V/3.3V	CF-Type I/II	TQFP	144	Ind.

System ACE Flash

Table 17: System ACE Flash Product Selection Guide

System ACE Flash Part No.	Supply Voltage (V _{CC})	Density	Pkg. Type	Temp. Range
XCCACE128-I	3.3V	128 Mbits	CF-Type I	Ind.
XCCACE256-I	3.3V	256 Mbits	CF-Type I	Ind.

XC18V00 In-System Programmable Configuration PROMs

Table 18: XC18V00 PROMs Product Selection Guide

XC18V00 Part No.	Volt.	Density	Pkg. Type	No. of Pins	Temp. Range	Status
XC18V04VQ44C	3.3V	4,194,304	VQFP	44	Com.	Available
XC18V04PC44C	3.3V	4,194,304	PLCC	44	Com.	Available
XC18V04VQ44I	3.3V	4,194,304	VQFP	44	Ind.	Available
XC18V04PC44I	3.3V	4,194,304	PLCC	44	Ind.	Available
XC18V02VQ44C	3.3V	2,097,152	VQFP	44	Com.	Available
XC18V02PC44C	3.3V	2,097,152	PLCC	44	Com.	Available
XC18V02VQ44I	3.3V	2,097,152	VQFP	44	Ind.	Available

Table 18: XC18V00 PROMs Product Selection Guide (Continued)

XC18V00 Part No.	Volt.	Density	Pkg. Type	No. of Pins	Temp. Range	Status
XC18V02PC44I	3.3V	2,097,152	PLCC	44	Ind.	Available
XC18V01VQ44C	3.3V	1,048,576	VQFP	44	Com.	Available
XC18V01PC20C	3.3V	1,048,576	PLCC	20	Com.	Available
XC18V01SO20C	3.3V	1,048,576	SOIC	20	Com.	Available
XC18V01VQ44I	3.3V	1,048,576	VQFP	44	Ind.	Available
XC18V01PC20I	3.3V	1,048,576	PLCC	20	Ind.	Available
XC18V01SO20I	3.3V	1,048,576	SOIC	20	Ind.	Available
XC18V512VQ44C	3.3V	524,288	VQFP	44	Com.	Available
XC18V512PC20C	3.3V	524,288	PLCC	20	Com.	Available
XC18V512SO20C	3.3V	524,288	SOIC	20	Com.	Available
XC18V512VQ44I	3.3V	524,288	VQFP	44	Ind.	Available
XC18V512PC20I	3.3V	524,288	PLCC	20	Ind.	Available
XC18V512SO20I	3.3V	524,288	SOIC	20	Ind.	Available
XC18V256VQ44C	3.3V	262,144	VQFP	44	Com.	Available
XC18V256PC20C	3.3V	262,144	PLCC	20	Com.	Available
XC18V256SO20C	3.3V	262,144	SOIC	20	Com.	Available
XC18V256VQ44I	3.3V	262,144	VQFP	44	Ind.	Available
XC18V256PC20I	3.3V	262,144	PLCC	20	Ind.	Available
XC18V256SO20I	3.3V	262,144	SOIC	20	Ind.	Available
XC18V256VQ44C	3.3V	262,144	VQFP	44	Com.	Available
XC18V256PC20C	3.3V	262,144	PLCC	20	Com.	Available
XC18V256SO20C	3.3V	262,144	SOIC	20	Com.	Available
XC18V256VQ44I	3.3V	262,144	VQFP	44	Ind.	Available
XC18V256PC20I	3.3V	262,144	PLCC	20	Ind.	Available
XC18V256SO20I	3.3V	262,144	SOIC	20	Ind.	Available

Table 19: Xilinx FPGAs and Compatible XC18V00 PROMs

Xilinx FPGA	Configuration Bits	Compatible PROM
XC2V40	338,208	XC18V512
XC2V80	597,408	XC18V01
XC2V250	1,591,584	XC18V02
XC2V500	2,557,856	XC18V04
XC2V1000	3,749,408	XC18V04
XC2V1500	5,166,240	XC18V02 + XC18V04
XC2V2000	6,808,652	2 of XC18V04
XC2V3000	9,589,408	2 of XC18V04 + XC18V02
XC2V4000	14,220,192	3 of XC18V04 + XC18V02

Table 19: Xilinx FPGAs and Compatible XC18V00 PROMs (Continued)

Xilinx FPGA	Configuration Bits	Compatible PROM
XC2V6000	19,752,096	5 of XC18V04
XC2V8000	26,185,120	6 of XC18V04 + XC18V02
XC2V10000	33,519,264	8 of XC18V04
XCV50	559,200	XC18V01
XCV100	781,216	XC18V01
XCV150	1,040,096	XC18V01
XCV200	1,335,840	XC18V02
XCV300	1,751,808	XC18V02
XCV400	2,546,048	XC18V04

Table 19: Xilinx FPGAs and Compatible XC18V00 PROMs (Continued)

Xilinx FPGA	Configuration Bits	Compatible PROM
XCV600	3,607,968	XC18V04
XCV800	4,715,616	XC18V04 + XC18V512
XCV1000	6,127,744	XC18V04 + XC18V02

Table 19: Xilinx FPGAs and Compatible XC18V00 PROMs (Continued)

Xilinx FPGA	Configuration Bits	Compatible PROM
XCV50E	630,048	XC18V01
XCV100E	863,840	XC18V01
XCV200E	1,442,106	XC18V02
XCV300E	1,875,648	XC18V02
XCV400E	2,693,440	XC18V04
XCV405E	3,340,400	XC18V04
XCV600E	3,961,632	XC18V04
XCV812E	6,519,648	2 of XC18V04
XCV1000E	6,587,520	2 of XC18V04
XCV1600E	8,308,992	2 of XC18V04
XCV2000E	10,159,648	3 of XC18V04
XCV2600E	12,922,336	4 of XC18V04
XCV3200E	16,283,712	4 of XC18V04

XC17V00 Configuration PROMs

Table 20: XC17V00 PROM Product Selection Guide

XC17V00 Part Number	Voltage	Density	Package Type	No. of Pins	Temp. Range	Status
XC17V16VQ44C	3.3V	16,777,216	VQFP	44	Com.	Available
XC17V16PC44C	3.3V	16,777,216	PLCC	44	Com.	Available
XC17V16VQ44I	3.3V	16,777,216	VQFP	44	Ind.	Available
XC17V16PC44I	3.3V	16,777,216	PLCC	44	Ind.	Available
XC17V08VQ44C	3.3V	8,388,608	VQFP	44	Com.	Available
XC17V08PC44C	3.3V	8,388,608	PLCC	44	Com.	Available
XC17V08VQ44I	3.3V	8,388,608	VQFP	44	Ind.	Available
XC17V08PC44I	3.3V	8,388,608	PLCC	44	Ind.	Available
XC17V04PC20C	3.3V	4,194,304	PLCC	20	Com.	Available
XC17V04PC44C	3.3V	4,194,304	PLCC	44	Com.	Available
XC17V04VQ44C	3.3V	4,194,304	VQFP	44	Com.	Available
XC17V04PC20I	3.3V	4,194,304	PLCC	20	Ind.	Available
XC17V04PC44I	3.3V	4,194,304	PLCC	44	Ind.	Available
XC17V04VQ44I	3.3V	4,194,304	VQFP	44	Ind.	Available
XC17V02PC20C	3.3V	2,097,152	PLCC	20	Com.	Available
XC17V02PC44C	3.3V	2,097,152	PLCC	44	Com.	Available
XC17V02VQ44C	3.3V	2,097,152	VQFP	44	Com.	Available
XC17V02PC20I	3.3V	2,097,152	PLCC	20	Ind.	Available
XC17V02PC44I	3.3V	2,097,152	PLCC	44	Ind.	Available

Table 20: XC17V00 PROM Product Selection Guide

XC17V00 Part Number	Voltage	Density	Package Type	No. of Pins	Temp. Range	Status
XC17V02VQ44I	3.3V	2,097,152	VQFP	44	Ind.	Available
XC17V01PC20C	3.3V	1,679,360	PLCC	20	Com.	Available
XC17V01VO8C	3.3V	1,679,360	SOIC	8	Com.	Available
XC17V01SO20C	3.3V	1,679,360	SOIC	20	Com.	Available
XC17V01PC20I	3.3V	1,679,360	PLCC	20	Ind.	Available
XC17V01VO8I	3.3V	1,679,360	SOIC	8	Ind.	Available
XC17V01SO20I	3.3V	1,679,360	SOIC	20	Ind.	Available

Table 21: Xilinx FPGAs and Compatible XC17V00 PROMs

Xilinx FPGA	Configuration Bits	PROM
XC2V40	338,208	XC17V01
XC2V80	597,408	XC17V01
XC2V250	1,591,584	XC17V01
XC2V500	2,557,856	XC17V04
XC2V1000	3,749,408	XC17V04
XC2V1500	5,166,240	XC17V08
XC2V2000	6,808,652	XC17V08
XC2V3000	9,589,408	XC17V016
XC2V4000	14,220,192	XC17V016
XC2V6000	19,752,096	XC17V016 + XC17V04
XC2V8000	26,185,120	2 of XC17V016
XC2V10000	33,519,264	2 of XC17V016
XCV50	559,200	XC17V01
XCV100	781,216	XC17V01
XCV150	1,040,096	XC17V01
XCV200	1,335,840	XC17V01
XCV300	1,751,808	XC17V02
XCV400	2,546,048	XC17V04
XCV600	3,607,968	XC17V04
XCV800	4,715,616	XC17V08
XCV1000	6,127,744	XC17V08
XCV50E	630,048	XC17V01
XCV100E	863,840	XC17V01
XCV200E	1,442,106	XC17V01
XCV300E	1,875,648	XC17V02

Table 21: Xilinx FPGAs and Compatible XC17V00 PROMs (Continued)

Xilinx FPGA	Configuration Bits	PROM
XCV400E	2,693,440	XC17V04
XCV405E	3,340,400	XC17V04
XCV600E	3,961,632	XC17V04
XCV812E	6,519,648	XC17V08
XCV1000E	6,587,520	XC17V08
XCV1600E	8,308,992	XC17V08
XCV2000E	10,159,648	XC17V16
XCV2600E	12,922,336	XC17V16
XCV3200E	16,283,712	XC17V16

Notes:

- The suggested PROM is determined by compatibility with the higher configuration frequency of the Xilinx FPGA CCLK.

Spartan-II Family of One-Time Programmable Configuration PROMs (XC17S00A)

Table 22: Configuration PROM XC17S00A Product Selection Guide

Spartan-II FPGA Part Number	Voltage	Density	Compatible XC17S00A PROM	Package Type	No. of Pins	Temp. Range	Status
XC2S15	3.3V	197,696	XC17S15APD8C	PDIP	8	Com.	Available
XC2S15	3.3V	197,696	XC17S15AVO8C	VOIC	8	Com.	Available
XC2S15	3.3V	197,696	XC17S15ASO20C	SOIC	20	Com.	Available
XC2S15	3.3V	197,696	XC17S15APD8I	PDIP	8	Ind.	Available
XC2S15	3.3V	197,696	XC17S15ASO20I	SOIC	20	Ind.	Available
XC2S15	3.3V	197,696	XC17S15AVO8I	VOIC	8	Ind.	Available
XC2S30	3.3V	336,768	XC17S30APD8C	PDIP	8	Com.	Available
XC2S30	3.3V	336,768	XC17S30AVO8C	VOIC	8	Com.	Available
XC2S30	3.3V	336,768	XC17S30ASO20C	SOIC	20	Com.	Available
XC2S30	3.3V	336,768	XC17S30APD8I	PDIP	8	Ind.	Available
XC2S30	3.3V	336,768	XC17S30AVO8I	VOIC	8	Ind.	Available
XC2S30	3.3V	336,768	XC17S30ASO20I	SOIC	20	Ind.	Available
XC2S50	3.3V	559,200	XC17S50APD8C	PDIP	8	Com.	Available
XC2S50	3.3V	559,200	XC17S50AVO8C	VOIC	8	Com.	Available
XC2S50	3.3V	559,200	XC17S50ASO20C	SOIC	20	Com.	Available
XC2S50	3.3V	559,200	XC17S50APD8I	PDIP	8	Ind.	Available
XC2S50	3.3V	559,200	XC17S50AVO8I	VOIC	8	Ind.	Available
XC2S50	3.3V	559,200	XC17S50ASO20I	SOIC	20	Ind.	Available
XC2S100	3.3V	781,216	XC17S100APD8C	PDIP	8	Com.	Available
XC2S100	3.3V	781,216	XC17S100AVO8C	VOIC	8	Com.	Available
XC2S100	3.3V	781,216	XC17S100ASO20C	SOIC	20	Com.	Available
XC2S100	3.3V	781,216	XC17S100APD8I	PDIP	8	Ind.	Available
XC2S100	3.3V	781,216	XC17S100AVO8I	VOIC	8	Ind.	Available
XC2S100	3.3V	781,216	XC17S100ASO20I	SOIC	20	Ind.	Available
XC2S150	3.3V	1,040,096	XC17S150APD8C	PDIP	8	Com.	Available
XC2S150	3.3V	1,040,096	XC17S150AVO8C	VOIC	8	Com.	Available
XC2S150	3.3V	1,040,096	XC17S150ASO20C	SOIC	20	Com.	Available
XC2S150	3.3V	1,040,096	XC17S150APD8I	PDIP	8	Ind.	Available
XC2S150	3.3V	1,040,096	XC17S150AVO8I	VOIC	8	Ind.	Available
XC2S150	3.3V	1,040,096	XC17S150ASO20I	SOIC	20	Ind.	Available
XC2S200	3.3V	1,335,840	XC17S200APD8C	PDIP	8	Com.	Available
XC2S200	3.3V	1,335,840	XC17S200AVO8C	VOIC	8	Com.	Available
XC2S200	3.3V	1,335,840	XC17S200AVQ44C	VQFP	44	Com.	Available
XC2S200	3.3V	1,335,840	XC17S200APD8I	PDIP	8	Ind.	Available
XC2S200	3.3V	1,335,840	XC17S200AVO8I	VOIC	8	Ind.	Available
XC2S200	3.3V	1,335,840	XC17S200AVQ44I	VQFP	44	Ind.	Available

Spartan Family of One-Time Programmable Configuration PROMS (XC17S00)

Table 23: Configuration PROM XC17S00 Product Selection Guide

Spartan FPGA Part Number	Voltage	Density	Compatible XC17S00 PROM	Package Type	No. of Pins	Temp. Range	Status
XCS05	5V	53,984	XC17S05PD8C	PDIP	8	Com.	Available
XCS05	5V	53,984	XC17S05VO8C	VOIC	8	Com.	Available
XCS05	5V	53,984	XC17S05PD8I	PDIP	8	Ind.	Available
XCS05	5V	53,984	XC17S05VO8I	VOIC	8	Ind.	Available
XCS10	5V	95,008	XC17S10PD8C	PDIP	8	Com.	Available
XCS10	5V	95,008	XC17S10VO8C	VOIC	8	Com.	Available
XCS10	5V	95,008	XC17S10PD8I	PDIP	8	Ind.	Available
XCS10	5V	95,008	XC17S10VO8I	VOIC	8	Ind.	Available
XCS20	5V	178,144	XC17S20PD8C	PDIP	8	Com.	Available
XCS20	5V	178,144	XC17S20VO8C	VOIC	8	Com.	Available
XCS20	5V	178,144	XC17S20PD8I	PDIP	8	Ind.	Available
XCS20	5V	178,144	XC17S20VO8I	VOIC	8	Ind.	Available
XCS30	5V	247,968	XC17S30PD8C	PDIP	8	Com.	Available
XCS30	5V	247,968	XC17S30VO8C	VOIC	8	Com.	Available
XCS30	5V	247,968	XC17S30PD8I	PDIP	8	Ind.	Available
XCS30	5V	247,968	XC17S30VO8I	VOIC	8	Ind.	Available
XCS40	5V	329,312	XC17S40PD8C	PDIP	8	Com.	Available
XCS40	5V	329,312	XC17S40SO20C	SOIC	20	Com.	Available
XCS40	5V	329,312	XC17S40PD8I	PDIP	8	Ind.	Available
XCS40	5V	329,312	XC17S40SO20I	SOIC	20	Ind.	Available
XCS05XL	3.3V	54,544	XC17S05XLPD8C	PDIP	8	Com.	Available
XCS05XL	3.3V	54,544	XC17S05XLVO8C	VOIC	8	Com.	Available
XCS05XL	3.3V	54,544	XC17S05XLPD8I	PDIP	8	Ind.	Available
XCS05XL	3.3V	54,544	XC17S05XLVO8I	VOIC	8	Ind.	Available
XCS10XL	3.3V	95,752	XC17S10XLPD8C	PDIP	8	Com.	Available
XCS10XL	3.3V	95,752	XC17S10XLVO8C	VOIC	8	Com.	Available
XCS10XL	3.3V	95,752	XC17S10XLPD8I	PDIP	8	Ind.	Available
XCS10XL	3.3V	95,752	XC17S10XLVO8I	VOIC	8	Ind.	Available
XCS20XL	3.3V	179,160	XC17S20XLPD8C	PDIP	8	Com.	Available
XCS20XL	3.3V	179,160	XC17S20XLVO8C	VOIC	8	Com.	Available
XCS20XL	3.3V	179,160	XC17S20XLPD8I	PDIP	8	Ind.	Available
XCS20XL	3.3V	179,160	XC17S20XLVO8I	VOIC	8	Ind.	Available
XCS30XL	3.3V	249,168	XC17S30XLPD8C	PDIP	8	Com.	Available
XCS30XL	3.3V	249,168	XC17S30XLVO8C	VOIC	8	Com.	Available
XCS30XL	3.3V	249,168	XC17S30XLPD8I	PDIP	8	Ind.	Available
XCS30XL	3.3V	249,168	XC17S30XLVO8I	VOIC	8	Ind.	Available

Table 23: Configuration PROM XC17S00 Product Selection Guide (Continued)

Spartan FPGA Part Number	Voltage	Density	Compatible XC17S00 PROM	Package Type	No. of Pins	Temp. Range	Status
XCS40XL	3.3V	330,696	XC17S40XLPD8C	PDIP	8	Com.	Available
XCS40XL	3.3V	330,696	XC17S40XLSO20C	SOIC	20	Com.	Available
XCS40XL	3.3V	330,696	XC17S40XLPD8I	PDIP	8	Ind.	Available
XCS40XL	3.3V	330,696	XC17S40XLSO20I	SOIC	20	Ind.	Available

CPLD: CoolRunner XPLA3 and XC9500 Product Selection Guide

CoolRunner XPLA3 Products

Table 24: CoolRunner XPLA3 Product Selection Guide

XPLA3 Part Number	Voltage	Speed Grade (ns)	Pkg. Type	No. of Pins	Temp. Range	Macro-cells	Usable Gates	Registers	T _{PD} (ns)	T _{SU} (ns)	T _{CO} (ns)	System Freq. (MHz)	User I/O Pins	Status
XCR3032XL-10PC44C	3.0V to 3.6V	10	PLCC	44	Com.	32	800	32	10	6.3	6.5	95	36	Available
XCR3032XL-7PC44C	3.0V to 3.6V	7.5	PLCC	44	Com.	32	800	32	7.5	4.8	5	119	36	Available
XCR3032XL-7PC44I	2.7V to 3.6V	7.5	PLCC	44	Ind.	32	800	32	7.5	4.8	5	119	36	Available
XCR3032XL-5PC44C	3.0V to 3.6V	5	PLCC	44	Com.	32	800	32	5	3.5	3.5	175	36	Available
XCR3032XL-10VQ44C	3.0V to 3.6V	10	VQFP	44	Com.	32	800	32	10	6.3	6.5	95	36	Available
XCR3032XL-7VQ44C	3.0V to 3.6V	7.5	VQFP	44	Com.	32	800	32	7.5	4.8	5	119	36	Available
XCR3032XL-7VQ44I	2.7V to 3.6V	7.5	VQFP	44	Ind.	32	800	32	7.5	4.8	5	119	36	Available
XCR3032XL-5VQ44C	3.0V to 3.6V	5	VQFP	44	Com.	32	800	32	5	3.5	3.5	175	36	Available
XCR3032XL-10CS48C	3.0V to 3.6V	10	CSP	48	Com.	32	800	32	10	6.3	6.5	95	36	Available
XCR3032XL-7CS48C	3.0V to 3.6V	7.5	CSP	48	Com.	32	800	32	7.5	4.8	5	119	36	Available
XCR3032XL-7CS48I	2.7V to 3.6V	7.5	CSP	48	Ind.	32	800	32	7.5	4.8	5	119	36	Available
XCR3032XL-5CS48C	3.0V to 3.6V	5	CSP	48	Com.	32	800	32	5	3.5	3.5	175	36	Available
XCR3064XL-10PC44C	3.0V to 3.6V	10	PLCC	44	Com.	64	1,600	64	10	6.3	6.5	95	36	Available
XCR3064XL-10PC44I	2.7V to 3.6V	10	PLCC	44	Ind.	64	1,600	64	10	6.3	6.5	95	36	Available
XCR3064XL-7PC44C	3.0V to 3.6V	7.5	PLCC	44	Com.	64	1,600	64	7.5	4.8	5	119	36	Available
XCR3064XL-7PC44I	2.7V to 3.6V	7.5	PLCC	44	Ind.	64	1,600	64	7.5	4.8	5	119	36	Available
XCR3064XL-6PC44C	3.0V to 3.6V	6	PLCC	44	Com.	64	1,600	64	6	4	4	145	36	Available
XCR3064XL-10VQ44C	3.0V to 3.6V	10	VQFP	44	Com.	64	1,600	64	10	6.3	6.5	95	36	Available
XCR3064XL-10VQ44I	2.7V to 3.6V	10	VQFP	44	Ind.	64	1,600	64	10	6.3	6.5	95	36	Available
XCR3064XL-7VQ44C	3.0V to 3.6V	7.5	VQFP	44	Com.	64	1,600	64	7.5	4.8	5	119	36	Available
XCR3064XL-7VQ44I	2.7V to 3.6V	7.5	VQFP	44	Ind.	64	1,600	64	7.5	4.8	5	119	36	Available
XCR3064XL-6VQ44C	3.0V to 3.6V	6	VQFP	44	Com.	64	1,600	64	6	4	4	145	36	Available
XCR3064XL-10CS48C	3.0V to 3.6V	10	CSP	48	Com.	64	1,600	64	10	6.3	6.5	95	40	Available

Table 24: CoolRunner XPLA3 Product Selection Guide (Continued)

XPLA3 Part Number	Voltage	Speed Grade (ns)	Pkg. Type	No. of Pins	Temp. Range	Macro-cells	Usable Gates	Registers	T _{PD} (ns)	T _{SU} (ns)	T _{CO} (ns)	System Freq. (MHz)	User I/O Pins	Status
XCR3064XL-10CS48I	2.7V to 3.6V	10	CSP	48	Ind.	64	1,600	64	10	6.3	6.5	95	40	Available
XCR3064XL-7CS48C	3.0V to 3.6V	7.5	CSP	48	Com.	64	1,600	64	7.5	4.8	5	119	40	Available
XCR3064XL-7CS48I	2.7V to 3.6V	7.5	CSP	48	Ind.	64	1,600	64	7.5	4.8	5	119	40	Available
XCR3064XL-6CS48C	3.0V to 3.6V	6	CSP	48	Com.	64	1,600	64	6	4	4	145	40	Available
XCR3064XL-10CP56C	3.0V to 3.6V	10	CSP	56	Com.	64	1,600	64	10	6.3	6.5	95	48	Available
XCR3064XL-10CP56I	2.7V to 3.6V	10	CSP	56	Ind.	64	1,600	64	10	6.3	6.5	95	48	Available
XCR3064XL-7CP56C	3.0V to 3.6V	7.5	CSP	56	Com.	64	1,600	64	7.5	4.8	5	119	48	Available
XCR3064XL-7CP56I	2.7V to 3.6V	7.5	CSP	56	Ind.	64	1,600	64	7.5	4.8	5	119	48	Available
XCR3064XL-6CP56C	3.0V to 3.6V	6	CSP	56	Com.	64	1,600	64	6	4	4	145	48	Available
XCR3064XL-10VQ100C	3.0V to 3.6V	10	VQFP	100	Com.	64	1,600	64	10	6.3	6.5	95	68	Available
XCR3064XL-10VQ100I	2.7V to 3.6V	10	VQFP	100	Ind.	64	1,600	64	10	6.3	6.5	95	68	Available
XCR3064XL-7VQ100C	3.0V to 3.6V	7.5	VQFP	100	Com.	64	1,600	64	7.5	4.8	5	119	68	Available
XCR3064XL-7VQ100I	2.7V to 3.6V	7.5	VQFP	100	Ind.	64	1,600	64	7.5	4.8	5	119	68	Available
XCR3064XL-6VQ100C	3.0V to 3.6V	6	VQFP	100	Com.	64	1,600	64	6	4	4	145	68	Available
XCR3128XL-10VQ100C	3.0V to 3.6V	10	VQFP	100	Com.	128	3,200	128	10	6.3	6.5	95	84	Available
XCR3128XL-10VQ100I	2.7V to 3.6V	10	VQFP	100	Ind.	128	3,200	128	10	6.3	6.5	95	84	Available
XCR3128XL-7VQ100C	3.0V to 3.6V	7.5	VQFP	100	Com.	128	3,200	128	7.5	4.8	5	119	84	Available
XCR3128XL-7VQ100I	2.7V to 3.6V	7.5	VQFP	100	Ind.	128	3,200	128	7.5	4.8	5	119	84	Not Released
XCR3128XL-6VQ100C	3.0V to 3.6V	6	VQFP	100	Com.	128	3,200	128	6	4	4	145	84	Not Released
XCR3128XL-10TQ144C	3.0V to 3.6V	10	TQFP	144	Com.	128	3,200	128	10	6.3	6.5	95	108	Available
XCR3128XL-10TQ144I	2.7V to 3.6V	10	TQFP	144	Ind.	128	3,200	128	10	6.3	6.5	95	108	Available
XCR3128XL-7TQ144C	3.0V to 3.6V	7.5	TQFP	144	Com.	128	3,200	128	7.5	4.8	5	119	108	Available
XCR3128XL-7TQ144I	2.7V to 3.6V	7.5	TQFP	144	Ind.	128	3,200	128	7.5	4.8	5	119	108	Not Released
XCR3128XL-6TQ144C	3.0V to 3.6V	6	TQFP	144	Com.	128	3,200	128	6	4	4	145	108	Not Released
XCR3128XL-10CS144C	3.0V to 3.6V	10	CSP	144	Com.	128	3,200	128	10	6.3	6.5	95	108	Available
XCR3128XL-10CS144I	2.7V to 3.6V	10	CSP	144	Ind.	128	3,200	128	10	6.3	6.5	95	108	Available
XCR3128XL-7CS144C	3.0V to 3.6V	7.5	CSP	144	Com.	128	3,200	128	7.5	4.8	5	119	108	Available
XCR3128XL-7CS144I	2.7V to 3.6V	7.5	CSP	144	Ind.	128	3,200	128	7.5	4.8	5	119	108	Not Released
XCR3128XL-6CS144C	3.0V to 3.6V	6	CSP	144	Com.	128	3,200	128	6	4	4	145	108	Not Released
XCR3256XL-12TQ144C	3.0V to 3.6V	12	TQFP	144	Com.	256	6,400	256	12	7.9	6.9	88	120	Available
XCR3256XL-12TQ144I	2.7V to 3.6V	12	TQFP	144	Ind.	256	6,400	256	12	7.9	6.9	88	120	Available
XCR3256XL-10TQ144C	3.0V to 3.6V	10	TQFP	144	Com.	256	6,400	256	10	6.5	5.8	105	120	Available
XCR3256XL-10TQ144I	2.7V to 3.6V	10	TQFP	144	Ind.	256	6,400	256	10	6.5	5.8	105	120	Available
XCR3256XL-7TQ144C	3.0V to 3.6V	7.5	TQFP	144	Com.	256	6,400	256	7.5	4.8	4.5	140	120	Available
XCR3256XL-12PQ208C	3.0V to 3.6V	12	PQFP	208	Com.	256	6,400	256	12	7.9	6.9	88	164	Available

Table 24: CoolRunner XPLA3 Product Selection Guide (Continued)

XPLA3 Part Number	Voltage	Speed Grade (ns)	Pkg. Type	No. of Pins	Temp. Range	Macro-cells	Usable Gates	Registers	T _{PD} (ns)	T _{SU} (ns)	T _{CO} (ns)	System Freq. (MHz)	User I/O Pins	Status
XCR3256XL-12PQ208I	2.7V to 3.6V	12	PQFP	208	Ind.	256	6,400	256	12	7.9	6.9	88	164	Available
XCR3256XL-10PQ208C	3.0V to 3.6V	10	PQFP	208	Com.	256	6,400	256	10	6.5	5.8	105	164	Available
XCR3256XL-10PQ208I	2.7V to 3.6V	10	PQFP	208	Ind.	256	6,400	256	10	6.5	5.8	105	164	Available
XCR3256XL-7PQ208C	3.0V to 3.6V	7.5	PQFP	208	Com.	256	6,400	256	7.5	4.8	4.5	140	164	Available
XCR3256XL-12FT256C	3.0V to 3.6V	12	FBGA	256	Com.	256	6,400	256	12	7.9	6.9	88	164	Q3
XCR3256XL-12FT256I	2.7V to 3.6V	12	FBGA	256	Ind.	256	6,400	256	12	7.9	6.9	88	164	Q3
XCR3256XL-10FT256C	3.0V to 3.6V	10	FBGA	256	Com.	256	6,400	256	10	6.5	5.8	105	164	Q3
XCR3256XL-10FT256I	2.7V to 3.6V	10	FBGA	256	Ind.	256	6,400	256	10	6.5	5.8	105	164	Q3
XCR3256XL-7FT256C	3.0V to 3.6V	7.5	FBGA	256	Com.	256	6,400	256	7.5	4.8	4.5	140	164	Q3
XCR3256XL-12CS280C	3.0V to 3.6V	12	BGA	280	Com.	256	6,400	256	12	7.9	6.9	88	164	Available
XCR3256XL-12CS280I	2.7V to 3.6V	12	BGA	280	Ind.	256	6,400	256	12	7.9	6.9	88	164	Available
XCR3256XL-10CS280C	3.0V to 3.6V	10	BGA	280	Com.	256	6,400	256	10	6.5	5.8	105	164	Available
XCR3256XL-10CS280I	2.7V to 3.6V	10	BGA	280	Ind.	256	6,400	256	10	6.5	5.8	105	164	Available
XCR3256XL-7CS280C	3.0V to 3.6V	7.5	BGA	280	Com.	256	6,400	256	7.5	4.8	4.5	140	164	Available
XCR3384XL-12PQ208C	3.0V to 3.6V	12	PQFP	208	Com.	384	9,600	384	12	7.9	6.9	83	172	Q3
XCR3384XL-12PQ208I	2.7V to 3.6V	12	PQFP	208	Ind.	384	9,600	384	12	7.9	6.9	83	172	Q3
XCR3384XL-10PQ208C	3.0V to 3.6V	10	PQFP	208	Com.	384	9,600	384	10	6.5	5.8	102	172	Q3
XCR3384XL-10PQ208I	2.7V to 3.6V	10	PQFP	208	Ind.	384	9,600	384	10	6.5	5.8	102	172	Q3
XCR3384XL-7PQ208C	3.0V to 3.6V	7.5	PQFP	208	Com.	384	9,600	384	7.5	4.8	4.5	127	172	Q3
XCR3384XL-12FT256C	3.0V to 3.6V	12	FBGA	256	Com.	384	9,600	384	12	7.9	6.9	83	212	Q3
XCR3384XL-12FT256I	2.7V to 3.6V	12	FBGA	256	Ind.	384	9,600	384	12	7.9	6.9	83	212	Q3
XCR3384XL-10FT256C	3.0V to 3.6V	10	FBGA	256	Com.	384	9,600	384	10	6.5	5.8	102	212	Q3
XCR3384XL-10FT256I	2.7V to 3.6V	10	FBGA	256	Ind.	384	9,600	384	10	6.5	5.8	102	212	Q3
XCR3384XL-7FT256C	3.0V to 3.6V	7.5	FBGA	256	Com.	384	9,600	384	7.5	4.8	4.5	127	212	Q3
XCR3384XL-12FG324C	3.0V to 3.6V	12	FBGA	324	Com.	384	9,600	384	12	7.9	6.9	83	220	Q3
XCR3384XL-12FG324I	2.7V to 3.6V	12	FBGA	324	Ind.	384	9,600	384	12	7.9	6.9	83	220	Q3
XCR3384XL-10FG324C	3.0V to 3.6V	10	FBGA	324	Com.	384	9,600	384	10	6.5	5.8	102	220	Q3
XCR3384XL-10FG324I	2.7V to 3.6V	10	FBGA	324	Ind.	384	9,600	384	10	6.5	5.8	102	220	Q3
XCR3384XL-7FG324C	3.0V to 3.6V	7.5	FBGA	324	Com.	384	9,600	384	7.5	4.8	4.5	127	220	Q3
XCR3512XL-12PQ208C	3.0V to 3.6V	12	PQFP	208	Com.	512	12,800	512	12	7.9	6.9	83	180	Q4
XCR3512XL-10PQ208C	3.0V to 3.6V	10	PQFP	208	Com.	515	12,800	512	10	6.5	5.8	102	180	Q4
XCR3512XL-10PQ208I	2.7V to 3.6V	10	PQFP	208	Ind.	512	12,800	512	10	6.5	5.8	102	180	Q4
XCR3512XL-7PQ208C	3.0V to 3.6V	7.5	PQFP	208	Com.	515	12,800	512	7.5	4.8	4.5	127	180	Q4
XCR3512XL-12FT256C	3.0V to 3.6V	12	FBGA	256	Com.	512	12,800	512	12	7.9	6.9	83	212	Q4
XCR3512XL-10FT256C	3.0V to 3.6V	10	FBGA	256	Com.	515	12,800	512	10	6.5	5.8	102	212	Q4

Table 24: CoolRunner XPLA3 Product Selection Guide (Continued)

XPLA3 Part Number	Voltage	Speed Grade (ns)	Pkg. Type	No. of Pins	Temp. Range	Macro-cells	Usable Gates	Registers	T _{PD} (ns)	T _{SU} (ns)	T _{CO} (ns)	System Freq. (MHz)	User I/O Pins	Status
XCR3512XL-10FT256I	2.7V to 3.6V	10	FBGA	256	Ind.	512	12,800	512	10	6.5	5.8	102	212	Q4
XCR3512XL-7FT256C	3.0V to 3.6V	7.5	FBGA	256	Com.	515	12,800	512	7.5	4.8	4.5	127	212	Q4
XCR3512XL-12FG324C	3.0V to 3.6V	12	FBGA	324	Com.	512	12,800	512	12	7.9	6.9	83	260	Q4
XCR3512XL-10FG324C	3.0V to 3.6V	10	FBGA	324	Com.	515	12,800	512	10	6.5	5.8	102	260	Q4
XCR3512XL-10FG324I	2.7V to 3.6V	10	FBGA	324	Ind.	512	12,800	512	10	6.5	5.8	102	260	Q4
XCR3512XL-7FG324C	3.0V to 3.6V	7.5	FBGA	324	Com.	515	12,800	512	7.5	4.8	4.5	127	260	Q4

XC9500XV Products

Table 25: XC9500XV Product Selection Guide

XC9500XV Part No.	Volt.	Speed Grade (ns)	Pkg. Type	No. of Pins	Temp. Range	Macro-cells	Usable Gates	Registers	T _{PD} (ns)	T _{SU} (ns)	T _{CO} (ns)	System Freq. (MHz)	Output Banks	User I/O Pins	Status
XC9536XV-7PC44C	2.5V	7.5	PLCC	44	Com.	36	800	36	7.5	4.8	4.5	125	1	34	Q3
XC9536XV-7PC44I	2.5V	7.5	PLCC	44	Ind.	36	800	36	7.5	4.8	4.5	125	1	34	Q3
XC9536XV-5PC44C	2.5V	5	PLCC	44	Com.	36	800	36	5	3.7	3	222	1	34	Q3
XC9536XV-4PC44C	2.5V	4	PLCC	44	Com.	36	800	36	4	3.1	2	250	1	34	Q3
XC9536XV-3PC44C	2.5V	3.5	PLCC	44	Com.	36	800	36	3.5	2.8	1.8	278	1	34	Q4
XC9536XV-7VQ44C	2.5V	7.5	VQFP	44	Com.	36	800	36	7.5	4.8	4.5	125	1	34	Q3
XC9536XV-7VQ44I	2.5V	7.5	VQFP	44	Ind.	36	800	36	7.5	4.8	4.5	125	1	34	Q3
XC9536XV-5VQ44C	2.5V	5	VQFP	44	Com.	36	800	36	5	3.7	3	222	1	34	Q3
XC9536XV-4VQ44C	2.5V	4	VQFP	44	Com.	36	800	36	4	3.1	2	250	1	34	Q3
XC9536XV-3VQ44C	2.5V	3.5	VQFP	44	Com.	36	800	36	3.5	2.8	1.8	278	1	34	Q4
XC9536XV-7CS48C	2.5V	7.5	CSP	48	Com.	36	800	36	7.5	4.8	4.5	125	1	36	Q3
XC9536XV-7CS48I	2.5V	7.5	CSP	48	Ind.	36	800	36	7.5	4.8	4.5	125	1	36	Q3
XC9536XV-5CS48C	2.5V	5	CSP	48	Com.	36	800	36	5	3.7	3	222	1	36	Q3
XC9536XV-4CS48C	2.5V	4	CSP	48	Com.	36	800	36	4	3.1	2	250	1	36	Q3
XC9572XV-7PC44C	2.5V	7.5	PLCC	44	Com.	72	1,600	72	7.5	4.8	4.5	125	1	34	Available
XC9572XV-7PC44I	2.5V	7.5	PLCC	44	Ind.	72	1,600	72	7.5	4.8	4.5	125	1	34	Available
XC9572XV-5PC44C	2.5V	5	PLCC	44	Com.	72	1,600	72	5	3.7	3	222	1	34	Available
XC9572XV-4PC44C	2.5V	4	PLCC	44	Com.	72	1,600	72	4	3.1	2	250	1	34	Q3
XC9572XV-7VQ44C	2.5V	7.5	VQFP	44	Com.	72	1,600	72	7.5	4.8	4.5	125	1	34	Available
XC9572XV-7VQ44I	2.5V	7.5	VQFP	44	Ind.	72	1,600	72	7.5	4.8	4.5	125	1	34	Available
XC9572XV-5VQ44C	2.5V	5	VQFP	44	Com.	72	1,600	72	5	3.7	3	222	1	34	Available
XC9572XV-4VQ44C	2.5V	4	VQFP	44	Com.	72	1,600	72	4	3.1	2	250	1	34	Q3
XC9572XV-7CS48C	2.5V	7.5	CSP	48	Com.	72	1,600	72	7.5	4.8	4.5	125	1	72	Available
XC9572XV-7CS48I	2.5V	7.5	CSP	48	Ind.	72	1,600	72	7.5	4.8	4.5	125	1	72	Available

Table 25: XC9500XV Product Selection Guide (Continued)

XC9500XV Part No.	Volt.	Speed Grade (ns)	Pkg. Type	No. of Pins	Temp. Range	Macro-cells	Usable Gates	Registers	T _{PD} (ns)	T _{SU} (ns)	T _{CO} (ns)	System Freq. (MHz)	Output Banks	User I/O Pins	Status
XC9572XV-5CS48C	2.5V	5	CSP	48	Com.	72	1,600	72	5	3.7	3	222	1	72	Available
XC9572XV-7TQ100C	2.5V	7.5	TQFP	100	Com.	72	1,600	72	7.5	4.8	4.5	125	1	38	Available
XC9572XV-7TQ100I	2.5V	7.5	TQFP	100	Ind.	72	1,600	72	7.5	4.8	4.5	125	1	38	Available
XC9572XV-5TQ100C	2.5V	5	TQFP	100	Com.	72	1,600	72	5	3.7	3	222	1	38	Available
XC9572XV-4TQ100C	2.5V	4	TQFP	100	Com.	72	1,600	72	4	3.1	2	250	1	38	Q3
XC95144XV-7TQ100C	2.5V	7.5	TQFP	100	Com.	144	3,200	144	7.5	4.8	4.5	125	2	81	Available
XC95144XV-7TQ100I	2.5V	7.5	TQFP	100	Ind.	144	3,200	144	7.5	4.8	4.5	125	2	81	Available
XC95144XV-5TQ100C	2.5V	5	TQFP	100	Com.	144	3,200	144	5	3.7	3	222	2	81	Available
XC95144XV-4TQ100C	2.5V	4	TQFP	100	Com.	144	3,200	144	4	3.1	2	250	2	81	Q3
XC95144XV-7TQ144C	2.5V	7.5	TQFP	144	Com.	144	3,200	144	7.5	4.8	4.5	125	2	117	Available
XC95144XV-7TQ144I	2.5V	7.5	TQFP	144	Ind.	144	3,200	144	7.5	4.8	4.5	125	2	117	Available
XC95144XV-5TQ144C	2.5V	5	TQFP	144	Com.	144	3,200	144	5	3.7	3	222	2	117	Available
XC95144XV-4TQ144C	2.5V	4	TQFP	144	Com.	144	3,200	144	4	3.1	2	250	2	117	Q3
XC95144XV-7CS144C	2.5V	7.5	CSP	144	Com.	144	3,200	144	7.5	4.8	4.5	125	2	117	Available
XC95144XV-5CS144C	2.5V	5	CSP	144	Com.	144	3,200	144	5	3.7	3	222	2	117	Available
XC95288XV-10TQ144C	2.5V	10	TQFP	144	Com.	288	6,400	288	10	6.5	5.8	100	4	117	Q3
XC95288XV-10TQ144I	2.5V	10	TQFP	144	Ind.	288	6,400	288	10	6.5	5.8	100	4	117	Q3
XC95288XV-7TQ144C	2.5V	7.5	TQFP	144	Com.	288	6,400	288	7.5	4.8	4.5	125	4	117	Q3
XC95288XV-5TQ144C	2.5V	5	TQFP	144	Com.	288	6,400	288	5	3.7	3	222	4	117	Q3
XC95288XV-10PQ208C	2.5V	10	PQFP	208	Com.	288	6,400	288	10	6.5	5.8	100	4	168	Q3
XC95288XV-10PQ208I	2.5V	10	PQFP	208	Ind.	288	6,400	288	10	6.5	5.8	100	4	168	Q3
XC95288XV-7PQ208C	2.5V	7.5	PQFP	208	Com.	288	6,400	288	7.5	4.8	4.5	125	4	168	Q3
XC95288XV-5PQ208C	2.5V	5	PQFP	208	Com.	288	6,400	288	5	3.7	3	222	4	168	Q3
XC95288XV-10FG256C	2.5V	10	FBGA	256	Com.	288	6,400	288	10	6.5	5.8	100	4	192	Q3
XC95288XV-10FG256I	2.5V	10	FBGA	256	Ind.	288	6,400	288	10	6.5	5.8	100	4	192	Q3
XC95288XV-7FG256C	2.5V	7.5	FBGA	256	Com.	288	6,400	288	7.5	4.8	4.5	125	4	192	Q3
XC95288XV-5FG256C	2.5V	5	FBGA	256	Com.	288	6,400	288	5	3.7	3	222	4	192	Q3
XC95288XV-10CS280C	2.5V	10	CSP	280	Com.	288	6,400	288	10	6.5	5.8	100	4	192	Q3
XC95288XV-10CS280I	2.5V	10	CSP	280	Ind.	288	6,400	288	10	6.5	5.8	100	4	192	Q3
XC95288XV-7CS280C	2.5V	7.5	CSP	280	Com.	288	6,400	288	7.5	4.8	4.5	125	4	192	Q3
XC95288XV-5CS280C	2.5V	5	CSP	280	Com.	288	6,400	288	5	3.7	3	222	4	192	Q3

XC9500XL Products

Table 26: XC9500XL Product Selection Guide

XC9500XL Part No.	Volt.	Speed Grade (ns)	Pkg. Type	No. of Pins	Temp. Range	Macro-cells	Usable Gates	Registers	T _{PD} (ns)	T _{SU} (ns)	T _{CO} (ns)	System Freq. (MHz)	User I/O Pins	Status
XC9536XL-10PC44C	3.3V	10	PLCC	44	Com.	36	800	36	10	6.5	5.8	100	34	Available
XC9536XL-10PC44I	3.3V	10	PLCC	44	Ind.	36	800	36	10	6.5	5.8	100	34	Available
XC9536XL-7PC44C	3.3V	7.5	PLCC	44	Com.	36	800	36	7.5	4.8	4.5	125	34	Available
XC9536XL-7PC44I	3.3V	7.5	PLCC	44	Ind.	36	800	36	7.5	4.8	4.5	125	34	Available
XC9536XL-5PC44C	3.3V	5	PLCC	44	Com.	36	800	36	5	3.7	2.5	222.2	34	Available
XC9536XL-10VQ44C	3.3V	10	VQFP	44	Com.	36	800	36	10	6.5	5.8	100	34	Available
XC9536XL-10VQ44I	3.3V	10	VQFP	44	Ind.	36	800	36	10	6.5	5.8	100	34	Available
XC9536XL-7VQ44C	3.3V	7.5	VQFP	44	Com.	36	800	36	7.5	4.8	4.5	125	34	Available
XC9536XL-7VQ44I	3.3V	7.5	VQFP	44	Ind.	36	800	36	7.5	4.8	4.5	125	34	Available
XC9536XL-5VQ44C	3.3V	5	VQFP	44	Com.	36	800	36	5	3.7	2.5	222.2	34	Available
XC9536XL-10CS48I	3.3V	10	VQFP	48	Ind.	36	800	36	10	6.5	5.8	100	36	Available
XC9536XL-7CS48C	3.3V	7.5	VQFP	48	Com.	36	800	36	7.5	4.8	4.5	125	36	Available
XC9536XL-7CS48I	3.3V	7.5	VQFP	48	Ind.	36	800	36	7.5	4.8	4.5	125	36	Available
XC9536XL-5CS48C	3.3V	5	VQFP	44	Com.	36	800	36	5	3.7	2.5	222.2	36	Available
XC9536XL-10VQ64C	3.3V	10	VQFP	64	Com.	36	800	36	10	6.5	5.8	100	36	Available
XC9536XL-10VQ64I	3.3V	10	VQFP	64	Ind.	36	800	36	10	6.5	5.8	100	36	Available
XC9536XL-7VQ64C	3.3V	7.5	VQFP	64	Com.	36	800	36	7.5	4.8	4.5	125	36	Available
XC9536XL-7VQ64I	3.3V	7.5	VQFP	64	Ind.	36	800	36	7.5	4.8	4.5	125	36	Available
XC9536XL-5VQ64C	3.3V	5	VQFP	64	Com.	36	800	36	5	3.7	2.5	222.2	36	Available
XC9572XL-10PC44C	3.3V	10	PLCC	44	Com.	72	1,600	72	10	6.5	5.8	100	34	Available
XC9572XL-10PC44I	3.3V	10	PLCC	44	Ind.	72	1,600	72	10	6.5	5.8	100	34	Available
XC9572XL-7PC44C	3.3V	7.5	PLCC	44	Com.	72	1,600	72	7.5	4.8	4.5	125	34	Available
XC9572XL-7PC44I	3.3V	7.5	PLCC	44	Ind.	72	1,600	72	7.5	4.8	4.5	125	34	Available
XC9572XL-5PC44C	3.3V	5	PLCC	44	Com.	72	1,600	72	5	3.7	2.5	222.2	34	Available
XC9572XL-10VQ44C	3.3V	10	VQFP	44	Com.	72	1,600	72	10	6.5	5.8	100	34	Available
XC9572XL-10VQ44I	3.3V	10	VQFP	44	Ind.	72	1,600	72	10	6.5	5.8	100	34	Available
XC9572XL-7VQ44C	3.3V	7.5	VQFP	44	Com.	72	1,600	72	7.5	4.8	4.5	125	34	Available
XC9572XL-7VQ44I	3.3V	7.5	VQFP	44	Ind.	72	1,600	72	7.5	4.8	4.5	125	34	Available
XC9572XL-5VQ44C	3.3V	5	VQFP	44	Com.	72	1,600	72	5	3.7	2.5	222.2	34	Available
XC9572XL-10CS48C	3.3V	10	VQFP	48	Com.	72	1,600	72	10	6.5	5.8	100	38\	Available
XC9572XL-10CS48I	3.3V	10	VQFP	48	Ind.	72	1,600	72	10	6.5	5.8	100	38\	Available
XC9572XL-7CS48C	3.3V	7.5	VQFP	48	Com.	72	1,600	72	7.5	4.8	4.5	125	38	Available
XC9572XL-10VQ64C	3.3V	10	VQFP	64	Com.	72	1,600	72	10	6.5	5.8	100	52	Available
XC9572XL-10VQ64I	3.3V	10	VQFP	64	Ind.	72	1,600	72	10	6.5	5.8	100	52	Available

Table 26: XC9500XL Product Selection Guide

XC9500XL Part No.	Volt.	Speed Grade (ns)	Pkg. Type	No. of Pins	Temp. Range	Macro-cells	Usable Gates	Registers	T _{PD} (ns)	T _{SU} (ns)	T _{CO} (ns)	System Freq. (MHz)	User I/O Pins	Status
XC9572XL-7VQ64C	3.3V	7.5	VQFP	64	Com.	72	1,600	72	7.5	4.8	4.5	125	52	Available
XC9572XL-7VQ64I	3.3V	7.5	VQFP	64	Ind.	72	1,600	72	7.5	4.8	4.5	125	52	Available
XC9572XL-5VQ64C	3.3V	5	VQFP	64	Com.	72	1,600	72	5	3.7	2.5	222.2	52	Available
XC9572XL-10TQ100C	3.3V	10	TQFP	100	Com.	72	1,600	72	10	6.5	5.8	100	72	Available
XC9572XL-10TQ100I	3.3V	10	TQFP	100	Ind.	72	1,600	72	10	6.5	5.8	100	72	Available
XC9572XL-7TQ100C	3.3V	7.5	TQFP	100	Com.	72	1,600	72	7.5	4.8	4.5	125	72	Available
XC9572XL-7TQ100I	3.3V	7.5	TQFP	100	Ind.	72	1,600	72	7.5	4.8	4.5	125	72	Available
XC9572XL-5TQ100C	3.3V	5	TQFP	100	Com.	72	1,600	72	5	3.7	2.5	222.2	72	Available
XC95144XL-10TQ100C	3.3V	10	TQFP	100	Com.	144	3,200	144	10	6.5	5.8	100	81	Available
XC95144XL-10TQ100I	3.3V	10	TQFP	100	Ind.	144	3,200	144	10	6.5	5.8	100	81	Available
XC95144XL-7TQ100C	3.3V	7.5	TQFP	100	Com.	144	3,200	144	7.5	4.8	4.5	125	81	Available
XC95144XL-5TQ100C	3.3V	5	TQFP	100	Com.	144	3,200	144	5	3.7	2.5	222.2	81	Available
XC95144XL-10TQ144C	3.3V	10	TQFP	144	Com.	144	3,200	144	10	6.5	5.8	100	117	Available
XC95144XL-10TQ144I	3.3V	10	TQFP	144	Ind.	144	3,200	144	10	6.5	5.8	100	117	Available
XC95144XL-7TQ144C	3.3V	7.5	TQFP	144	Com.	144	3,200	144	7.5	4.8	4.5	125	117	Available
XC95144XL-5TQ144C	3.3V	5	TQFP	144	Com.	144	3,200	144	5	3.7	2.5	222.2	117	Available
XC95144XL-10CS144C	3.3V	10	CSP	144	Com.	144	3,200	144	5	3.7	3.5	178	117	Available
XC95144XL-7CS144C	3.3V	7.5	CSP	144	Com.	144	3,200	144	7.5	4.8	4.5	125	117	Available
XC95288XL-10TQ144C	3.3V	10	TQFP	144	Com.	288	6,400	288	10	6.5	5.8	100	117	Available
XC95288XL-10TQ144I	3.3V	10	TQFP	144	Ind.	288	6,400	288	10	6.5	5.8	100	117	Available
XC95288XL-7TQ144C	3.3V	7.5	TQFP	144	Com.	288	6,400	288	7.5	4.8	4.5	125	117	Available
XC95288XL-6TQ144C	3.3V	6	TQFP	144	Com.	288	6,400	288	6	4	3.8	208.3	117	Available
XC95288XL-10PQ208C	3.3V	10	TQFP	208	Com.	288	6,400	288	10	6.5	5.8	100	168	Available
XC95288XL-10PQ208I	3.3V	10	TQFP	208	Ind.	288	6,400	288	10	6.5	5.8	100	168	Available
XC95288XL-7PQ208C	3.3V	7.5	TQFP	208	Com.	288	6,400	288	7.5	4.8	4.5	125	168	Available
XC95288XL-6PQ208C	3.3V	6	TQFP	208	Com.	288	6,400	288	6	4	3.8	208.3	168	Available
XC95288XL-10BG256C	3.3V	10	BGA	256	Com.	288	6,400	288	10	6.5	5.8	100	192	Available
XC95288XL-10BG256I	3.3V	10	BGA	256	Ind.	288	6,400	288	10	6.5	5.8	100	192	Available
XC95288XL-7BG256C	3.3V	7.5	BGA	256	Com.	288	6,400	288	7.5	4.8	4.5	125	192	Available
XC95288XL-6BG256C	3.3V	6	BGA	256	Com.	288	6,400	288	6	4	3.8	208.3	192	Available
XC95288XL-10FG256C	3.3V	10	FBGA	256	Com.	288	6,400	288	10	6.5	5.8	100	192	Available
XC95288XL-10FG256I	3.3V	10	FBGA	256	Ind.	288	6,400	288	10	6.5	5.8	100	192	Available
XC95288XL-7FG256C	3.3V	7.5	FBGA	256	Com.	288	6,400	288	7.5	4.8	4.5	125	192	Available
XC95288XL-6FG256C	3.3V	6	FBGA	256	Com.	288	6,400	288	6	4	3.8	208.3	192	Available
XC95288XL-10CS280C	3.3V	10	CSP	280	Com.	288	6,400	288	10	6.5	5.8	100	192	Available

Table 26: XC9500XL Product Selection Guide

XC9500XL Part No.	Volt.	Speed Grade (ns)	Pkg. Type	No. of Pins	Temp. Range	Macro-cells	Usable Gates	Registers	T _{PD} (ns)	T _{SU} (ns)	T _{CO} (ns)	System Freq. (MHz)	User I/O Pins	Status
XC95288XL-10CS280I	3.3V	10	CSP	280	Ind.	288	6,400	288	10	6.5	5.8	100	192	Available
XC95288XL-7CS280C	3.3V	7.5	CSP	280	Com.	288	6,400	288	7.5	4.8	4.5	125	192	Available
XC95288XL-6CS280C	3.3V	6	CSP	280	Com.	288	6,400	288	6	4	3.8	208.3	192	Available

XC9500 Products

Table 27: XC9500 Product Selection Guide

XC9500 Part No.	Volt.	Speed Grade (ns)	Pkg. Type	No. of Pins	Temp. Range	Macro-cells	Usable Gates	Registers	T _{PD} (ns)	T _{SU} (ns)	T _{CO} (ns)	f _{CNT} (MHz)	System Freq. (MHz)	User I/O Pins	Status
XC9536-15PC44C	5V	15	PLCC	44	Com.	36	800	36	15	8	8	55.6	55.6	34	Available
XC9536-15PC44I	5V	15	PLCC	44	Ind.	36	800	36	15	8	8	55.6	55.6	34	Available
XC9536-10PC44C	5V	10	PLCC	44	Com.	36	800	36	10	6	6	66.7	66.7	34	Available
XC9536-10PC44I	5V	10	PLCC	44	Ind.	36	800	36	10	6	6	66.7	66.7	34	Available
XC9536-7PC44C	5V	7.5	PLCC	44	Com.	36	800	36	7.5	4.5	4.5	83.3	83.3	34	Available
XC9536-7PC44I	5V	7.5	PLCC	44	Ind.	36	800	36	7.5	4.5	4.5	83.3	83.3	34	Available
XC9535-5PC44C	5V	5	PLCC	44	Com.	36	800	36	5	3.5	4	100	100	34	Available
XC9536-15VQ44C	5V	15	VQFP	44	Com.	36	800	36	15	8	8	55.6	55.6	34	Available
XC9536-15VQ44I	5V	15	VQFP	44	Ind.	36	800	36	15	8	8	55.6	55.6	34	Available
XC9536-10VQ44C	5V	10	VQFP	44	Com.	36	800	36	10	6	6	66.7	66.7	34	Available
XC9536-10VQ44I	5V	10	VQFP	44	Ind.	36	800	36	10	6	6	66.7	66.7	34	Available
XC9536-7VQ44C	5V	7.5	VQFP	44	Com.	36	800	36	7.5	4.5	4.5	83.3	83.3	34	Available
XC9536-7VQ44I	5V	7.5	VQFP	44	Ind.	36	800	36	7.5	4.5	4.5	83.3	83.3	34	Available
XC9535-5VQ44C	5V	5	VQFP	44	Com.	36	800	36	5	3.5	4	100	100	34	Available
XC9536-10CS48C	5V	10	CSP	48	Com.	36	800	36	10	6	6	66.7	66.7	34	Available
XC9536-7CS48C	5V	7.5	CSP	48	Com.	36	800	36	7.5	4.5	4.5	83.3	83.3	34	Available
XC9535-5CS48C	5V	5	CSP	48	Com.	36	800	36	5	3.5	4	100	100	34	Available
XC9572-15PC44C	5V	15	PLCC	44	Com.	72	1,600	72	15	8	8	95.2	55.6	34	Available
XC9572-15PC44I	5V	15	PLCC	44	Ind.	72	1,600	72	15	8	8	95.2	55.6	34	Available
XC9572-10PC44C	5V	10	PLCC	44	Com.	72	1,600	72	10	6	6	111.1	66.7	34	Available
XC9572-10PC44I	5V	10	PLCC	44	Ind.	72	1,600	72	10	6	6	111.1	66.7	34	Available
XC9572-7PC44C	5V	7.5	PLCC	44	Com.	72	1,600	72	7.5	4.5	4.5	125	83.3	34	Available
XC9572-15PC84C	5V	15	PLCC	84	Com.	72	1,600	72	15	8	8	95.2	55.6	69	Available
XC9572-15PC84I	5V	15	PLCC	84	Ind.	72	1,600	72	15	8	8	95.2	55.6	69	Available
XC9572-10PC84C	5V	10	PLCC	84	Com.	72	1,600	72	10	6	6	111.1	66.7	69	Available
XC9572-10PC84I	5V	10	PLCC	84	Ind.	72	1,600	72	10	6	6	111.1	66.7	69	Available
XC9572-7PC84C	5V	7.5	PLCC	84	Com.	72	1,600	72	7.5	4.5	4.5	125	83.3	72	Available
XC9572-15PQ100C	5V	15	PQFP	100	Com.	72	1,600	72	15	8	8	95.2	55.6	72	Available

Table 27: XC9500 Product Selection Guide

XC9500 Part No.	Volt.	Speed Grade (ns)	Pkg. Type	No. of Pins	Temp. Range	Macro-cells	Usable Gates	Registers	T _{PD} (ns)	T _{SU} (ns)	T _{CO} (ns)	f _{CNT} (MHz)	System Freq. (MHz)	User I/O Pins	Status
XC9572-15PQ100I	5V	15	PQFP	100	Ind.	72	1,600	72	15	8	8	95.2	55.6	72	Available
XC9572-10PQ100C	5V	10	PQFP	100	Com.	72	1,600	72	10	6	6	111.1	66.7	72	Available
XC9572-10PQ100I	5V	10	PQFP	100	Ind.	72	1,600	72	10	6	6	111.1	66.7	72	Available
XC9572-7PQ100C	5V	7.5	PQFP	100	Com.	72	1,600	72	7.5	4.5	4.5	125	83.3	72	Available
XC9572-15TQ100C	5V	15	TQFP	100	Com.	72	1,600	72	15	8	8	95.2	55.6	72	Available
XC9572-15TQ100I	5V	15	TQFP	100	Ind.	72	1,600	72	15	8	8	95.2	55.6	72	Available
XC9572-10TQ100C	5V	10	TQFP	100	Com.	72	1,600	72	10	6	6	111.1	66.7	72	Available
XC9572-10TQ100I	5V	10	TQFP	100	Ind.	72	1,600	72	10	6	6	111.1	66.7	72	Available
XC9572-7TQ100C	5V	7.5	TQFP	100	Com.	72	1,600	72	7.5	4.5	4.5	125	83.3	72	Available
XC95108-20PC84C	5V	20	PLCC	84	Com.	108	2,400	108	20	10	10	83.3	50	69	Available
XC95108-20PC84I	5V	20	PLCC	84	Ind.	108	2,400	108	20	10	10	83.3	50	69	Available
XC95108-15PC84C	5V	15	PLCC	84	Com.	108	2,400	108	15	8	8	95.2	55.6	69	Available
XC95108-15PC84I	5V	15	PLCC	84	Ind.	108	2,400	108	15	8	8	95.2	55.6	69	Available
XC95108-10PC84C	5V	10	PLCC	84	Com.	108	2,400	108	10	6	6	111.1	66.7	69	Available
XC95108-10PC84I	5V	10	PLCC	84	Ind.	108	2,400	108	10	6	6	111.1	66.7	69	Available
XC95108-7PC84C	5V	7.5	PLCC	84	Com.	108	2,400	108	7.5	4.5	4.5	125	83.3	69	Available
XC95108-20PQ100C	5V	20	PQFP	100	Com.	108	2,400	108	20	10	10	83.3	50	81	Available
XC95108-20PQ100I	5V	20	PQFP	100	Ind.	108	2,400	108	20	10	10	83.3	50	81	Available
XC95108-15PQ100C	5V	15	PQFP	100	Com.	108	2,400	108	15	8	8	95.2	55.6	81	Available
XC95108-15PQ100I	5V	15	PQFP	100	Ind.	108	2,400	108	15	8	8	95.2	55.6	81	Available
XC95108-10PQ100C	5V	10	PQFP	100	Com.	108	2,400	108	10	6	6	111.1	66.7	81	Available
XC95108-10PQ100I	5V	10	PQFP	100	Ind.	108	2,400	108	10	6	6	111.1	66.7	81	Available
XC95108-7PQ100C	5V	7.5	PQFP	100	Com.	108	2,400	108	7.5	4.5	4.5	125	83.3	81	Available
XC95108-20TQ100C	5V	20	TQFP	100	Com.	108	2,400	108	20	10	10	83.3	50	81	Available
XC95108-20TQ100I	5V	20	TQFP	100	Ind.	108	2,400	108	20	10	10	83.3	50	81	Available
XC95108-15TQ100C	5V	15	TQFP	100	Com.	108	2,400	108	15	8	8	95.2	55.6	81	Available
XC95108-15TQ100I	5V	15	TQFP	100	Ind.	108	2,400	108	15	8	8	95.2	55.6	81	Available
XC95108-10TQ100C	5V	10	TQFP	100	Com.	108	2,400	108	10	6	6	111.1	66.7	81	Available
XC95108-10TQ100I	5V	10	TQFP	100	Ind.	108	2,400	108	10	6	6	111.1	66.7	81	Available
XC95108-7TQ100C	5V	7.5	TQFP	100	Com.	108	2,400	108	7.5	4.5	4.5	125	83.3	81	Available
XC95108-20PQ160C	5V	20	PQFP	160	Com.	108	2,400	108	20	10	10	83.3	50	108	Available
XC95108-20PQ160I	5V	20	PQFP	160	Ind.	108	2,400	108	20	10	10	83.3	50	108	Available
XC95108-15PQ160C	5V	15	PQFP	160	Com.	108	2,400	108	15	8	8	95.2	55.6	108	Available
XC95108-15PQ160I	5V	15	PQFP	160	Ind.	108	2,400	108	15	8	8	95.2	55.6	108	Available
XC95108-10PQ160C	5V	10	PQFP	160	Com.	108	2,400	108	10	6	6	111.1	66.7	108	Available
XC95108-10PQ160I	5V	10	PQFP	160	Ind.	108	2,400	108	10	6	6	111.1	66.7	108	Available

Table 27: XC9500 Product Selection Guide

XC9500 Part No.	Volt.	Speed Grade (ns)	Pkg. Type	No. of Pins	Temp. Range	Macro-cells	Usable Gates	Registers	T _{PD} (ns)	T _{SU} (ns)	T _{CO} (ns)	f _{CNT} (MHz)	System Freq. (MHz)	User I/O Pins	Status
XC95108-7PQ160C	5V	7.5	PQFP	160	Com.	108	2,400	108	7.5	4.5	4.5	125	83.3	108	Available
XC95144-15PQ100C	5V	15	PQFP	100	Com.	144	3,200	144	15	8	8	95.2	55.6	81	Available
XC95144-15PQ100I	5V	15	PQFP	100	Ind.	144	3,200	144	15	8	8	95.2	55.6	81	Available
XC95144-10PQ100C	5V	10	PQFP	100	Com.	144	3,200	144	10	6	6	111.1	66.7	81	Available
XC95144-10PQ100I	5V	10	PQFP	100	Ind.	144	3,200	144	10	6	6	111.1	66.7	81	Available
XC95144-7PQ100C	5V	7.5	PQFP	100	Com.	144	3,200	144	7.5	4.5	4.5	125	83.3	81	Available
XC95144-15TQ100C	5V	15	TQFP	100	Com.	144	3,200	144	15	8	8	95.2	55.6	81	Available
XC95144-15TQ100I	5V	15	TQFP	100	Ind.	144	3,200	144	15	8	8	95.2	55.6	81	Available
XC95144-10TQ100C	5V	10	TQFP	100	Com.	144	3,200	144	10	6	6	111.1	66.7	81	Available
XC95144-10TQ100I	5V	10	TQFP	100	Ind.	144	3,200	144	10	6	6	111.1	66.7	81	Available
XC95144-7TQ100C	5V	7.5	TQFP	100	Com.	144	3,200	144	7.5	4.5	4.5	125	83.3	81	Available
XC95144-15PQ160C	5V	15	PQFP	160	Com.	144	3,200	144	15	8	8	95.2	55.6	133	Available
XC95144-15PQ160I	5V	15	PQFP	160	Ind.	144	3,200	144	15	8	8	95.2	55.6	133	Available
XC95144-10PQ160C	5V	10	PQFP	160	Com.	144	3,200	144	10	6	6	111.1	66.7	133	Available
XC95144-10PQ160I	5V	10	PQFP	160	Ind.	144	3,200	144	10	6	6	111.1	66.7	133	Available
XC95144-7PQ160C	5V	7.5	PQFP	160	Com.	144	3,200	144	7.5	4.5	4.5	125	83.3	133	Available
XC95216-20PQ160C	5V	20	PQFP	160	Com.	216	4,800	216	20	10	10	83.3	50	133	Available
XC95216-20PQ160I	5V	20	PQFP	160	Ind.	216	4,800	216	20	10	10	83.3	50	133	Available
XC95216-15PQ160C	5V	15	PQFP	160	Com.	216	4,800	216	15	8	8	95.2	55.6	133	Available
XC95216-15PQ160I	5V	15	PQFP	160	Ind.	216	4,800	216	15	8	8	95.2	55.6	133	Available
XC95216-10PQ160C	5V	10	PQFP	160	Com.	216	4,800	216	10	6	6	111.1	66.7	133	Available
XC95216-10PQ160I	5V	10	PQFP	160	Ind.	216	4,800	216	10	6	6	111.1	66.7	133	Available
XC95216-20HQ208C	5V	20	PQFP	208	Com.	216	4,800	216	20	10	10	83.3	50	166	Available
XC95216-20HQ208I	5V	20	PQFP	208	Ind.	216	4,800	216	20	10	10	83.3	50	166	Available
XC95216-15HQ208C	5V	15	PQFP	208	Com.	216	4,800	216	15	8	8	95.2	55.6	166	Available
XC95216-15HQ208I	5V	15	PQFP	208	Ind.	216	4,800	216	15	8	8	95.2	55.6	166	Available
XC95216-10HQ208C	5V	10	PQFP	208	Com.	216	4,800	216	10	6	6	111.1	66.7	166	Available
XC95216-10HQ208I	5V	10	PQFP	208	Ind.	216	4,800	216	10	6	6	111.1	66.7	166	Available
XC95216-20BG352C	5V	20	BGA	352	Com.	216	4,800	216	20	10	10	83.3	50	166	Available
XC95216-20BG352I	5V	20	BGA	352	Ind.	216	4,800	216	20	10	10	83.3	50	166	Available
XC95216-15BG352C	5V	15	BGA	352	Com.	216	4,800	216	15	8	8	95.2	55.6	166	Available
XC95216-15BG352I	5V	15	BGA	352	Ind.	216	4,800	216	15	8	8	95.2	55.6	166	Available
XC95216-10BG352C	5V	10	BGA	352	Com.	216	4,800	216	10	6	6	111.1	66.7	166	Available
XC95216-10BG352I	5V	10	BGA	352	Ind.	216	4,800	216	10	6	6	111.1	66.7	166	Available
XC95288-20HQ208C	5V	20	PQFP	208	Com.	288	6,400	288	20	10	10	83.3	50	166	Available
XC95288-20HQ208I	5V	20	PQFP	208	Ind.	288	6,400	288	20	10	10	83.3	50	166	Available

Table 27: XC9500 Product Selection Guide

XC9500 Part No.	Volt.	Speed Grade (ns)	Pkg. Type	No. of Pins	Temp. Range	Macro-cells	Usable Gates	Registers	T _{PD} (ns)	T _{SU} (ns)	T _{CO} (ns)	f _{CNT} (MHz)	System Freq. (MHz)	User I/O Pins	Status
XC95288-15HQ208C	5V	15	PQFP	208	Com.	288	6,400	288	15	8	8	95.2	55.6	166	Available
XC95288-15HQ208I	5V	15	PQFP	208	Ind.	288	6,400	288	15	8	8	95.2	55.6	166	Available
XC95288-10HQ208C	5V	10	PQFP	208	Com.	288	6,400	288	10	6	6	111.1	66.7	166	Available
XC95288-20BG352C	5V	20	BGA	352	Com.	288	6,400	288	20	10	10	83.3	50	166	Available
XC95288-20BG352I	5V	20	BGA	352	Ind.	288	6,400	288	20	10	10	83.3	50	166	Available
XC95288-15BG352C	5V	15	BGA	352	Com.	288	6,400	288	15	8	8	95.2	55.6	166	Available
XC95288-15BG352I	5V	15	BGA	352	Ind.	288	6,400	288	15	8	8	95.2	55.6	166	Available
XC95288-10BG352C	5V	10	BGA	352	Com.	288	6,400	288	10	6	6	111.1	66.7	166	Available

QPro QML Certified and Radiation Hardened Products

QPro Virtex 2.5V QML FPGAs

Table 28: QPro Virtex 2.5V QML Product Selection Guide

QPro Virtex Part No.	Volt.	Speed Grade	Pkg. Type	No. of Pins	Temp. Range	Avail. I/O	Max. Avail. I/O	System Gates	Logic Cells	Block RAM Bits	Max. SelectRAM+ Bits	Supported I/O Stds.	Status	Std. Micro-circuit Dwg. (SMD)
XQV100-4PQ240N	2.5V	4	Plastic QFP	240	Mil. Plastic	166	180	108,904	2,700	40,960	38,400	15	Available	TBD
XQV100-4BG256N	2.5V	4	Plastic BGA	256	Mil. Plastic	180	180	108,904	2,700	40,960	38,400	15	Available	TBD
XQV100-4CB228M	2.5V	4	Ceramic QFP	228	Mil. Ceramic	162	180	108,904	2,700	40,960	38,400	15	Available	TBD
XQV300-4PQ240N	2.5V	4	Plastic QFP	240	Mil. Plastic	166	316	322,970	6,912	65,536	98,304	15	Available	TBD
XQV300-4BG432N	2.5V	4	Plastic BGA	432	Mil. Plastic	316	316	322,970	6,912	65,536	98,304	15	Available	TBD
XQV300-4CB228M	2.5V	4	Ceramic QFP	228	Mil. Ceramic	162	316	322,970	6,912	65,536	98,304	15	Available	TBD
XQV600-4HQ240N	2.5V	4	Hi-Heat QFP	240	Mil. Plastic	166	316	661,111	15,552	98,304	221,184	15	Available	TBD
XQV600-4BG432N	2.5V	4	Plastic BGA	432	Mil. Plastic	316	316	661,111	15,552	98,304	221,184	15	Available	TBD

Table 28: QPro Virtex 2.5V QML Product Selection Guide (Continued)

QPro Virtex Part No.	Volt.	Speed Grade	Pkg. Type	No. of Pins	Temp. Range	Avail. I/O	Max. Avail. I/O	System Gates	Logic Cells	Block RAM Bits	Max. SelectRAM+ Bits	Supported I/O Stds.	Status	Std. Micro-circuit Dwg. (SMD)
XQV600-4CB228M	2.5V	4	Ceramic QFP	228	Mil. Ceramic	162	316	661,111	15,552	98,304	221,184	15	Available	TBD
XQV1000-4CG560M	2.5V	4	Ceramic Col. Grid Array	560	Mil. Ceramic	404	404	1,124,022	27,648	131,072	393,216	15	Available	TBD
XQV1000-4BG560N	2.5V	4	Plastic BGA	560	Mil. Plastic	404	404	1,124,022	27,648	131,072	393,216	15	Available	TBD

QPro Virtex 2.5V Radiation Hardened FPGAs

Table 29: QPro Virtex 2.5V Radiation Hardened FPGA Product Selection Guide

QPro RH Virtex Part No.	Volt.	Speed Grade	Pkg. Type	No. of Pins	Temp. Range	Avail. I/O	Max. Avail. I/O	System Gates	Logic Cells	Block RAM Bits	Max. SelectRAM+ Bits	Supported I/O Stds.	Status	Std. Micro-circuit Dwg. (SMD)
XQVR300-4CB228M	2.5V	4	Ceramic QFP	228	Mil. Cer.	162	316	322,970	6,912	65,536	98,304	15	Available	TBD
XQVR600-4CB228M	2.5V	4	Ceramic QFP	228	Mil. Cer.	162	316	661,111	15,552	98,304	221,184	15	Available	TBD
XQVR1000-4CG560M	2.5V	4	Ceramic Col. Grid Array	560	Mil. Ceramic	404	404	1,124,022	27,648	131,072	393,216	15	Available	TBD

QPro XQ4000E/EX QML FPGAs

Table 30: QPro XQ4000E/EX QML FPGA Product Selection Guide

XQ4000 Part No.	Volt.	Speed Grade	Pkg. Type	No. of Pins	Temp. Range	Max. Avail. I/O	Logic Gates (no RAM)	Max RAM Bits (no Logic)	Typical Gate Range (Logic + RAM)	Total CLBs	No. of Flip-Flops	Max Decode Inputs per Side	Status	Std. Micro-Circuit Dwg. (SMD)
XQ4005E-4PG156M	5V	4	Ceramic Pin Grid Array	156	Mil. Ceramic	112	5,000	6,272	3,000-9,000	196	616	42	Available	5962-975220 1QXC
XQ4005E-4CB164M	5V	4	Ceramic QFP	164	Mil. Ceramic	112	5,000	6,272	3,000-9,000	196	616	42	Available	5962-975220 1QYC/QZC
XQ4010E-4PG191M	5V	4	Ceramic Pin Grid Array	191	Mil. Ceramic	160	10,000	12,800	7,000-20,000	400	1,120	60	Available	5962-975230 1QXC
XQ4010E-4CB196M	5V	4	Ceramic QFP	196	Mil. Ceramic	160	10,000	12,800	7,000-20,000	400	1,120	60	Available	5962-975230 1QYC/QZC
XQ4010E-3HQ208N	5V	3	Plastic QFP	208	Mil. Plastic	160	10,000	12,800	7,000-20,000	400	1,120	60	Available	None

Table 30: QPro XQ4000E/EX QML FPGA Product Selection Guide (Continued)

XQ4000 Part No.	Volt.	Speed Grade	Pkg. Type	No. of Pins	Temp. Range	Max. Avail. I/O	Logic Gates (no RAM)	Max. RAM Bits (no Logic)	Typical Gate Range (Logic + RAM)	Total CLBs	No. of Flip-Flops	Max. Decode Inputs per Side	Status	Std. Micro-Circuit Dwg. (SMD)
XQ4013E-4PG223M	5V	4	Ceramic Pin Grid Array	223	Mil. Plastic	192	13,000	18,432	10,000-30,000	576	1,536	72	Available	5962-975240 1QXC
XQ4013E-4CB228M	5V	4	Ceramic QFP	228	Mil. Plastic	192	13,000	18,432	10,000-30,000	576	1,536	72	Available	5962-975240 1QYC/QZC
XQ4013E-3HQ240N	5V	3	Plastic QFP	240	Mil. Ceramic	192	13,000	18,432	10,000-30,000	576	1,536	72	Available	None
XQ4025E-4PG299M	5V	4	Ceramic Pin Grid Array	229	Mil. Plastic	256	25,000	32,768	15,000-45,000	1,024	2,560	96	Available	5962-975250 1QXC
XQ4025E-4CB228M	5V	4	Ceramic QFP	228	Mil. Plastic	256	25,000	32,768	15,000-45,000	1,024	2,560	96	Available	5962-975250 1QYC/QZC
XQ4028EX-4PG299M	5V	4	Ceramic Pin Grid Array	229	Mil. Plastic	256	28,000	32,768	18,000-50,000	1,024	2,560	96	Available	5962-985090 1QXC
XQ4028EX-4CB228M	5V	4	Ceramic QFP	228	Mil. Plastic	256	28,000	32,768	18,000-50,000	1,024	2,560	96	Available	5962-985090 1QYC/QZC
XQ4028EX-4HQ240N	5V	4	Plastic QFP	240	Mil. Ceramic	256	28,000	32,768	18,000-50,000	1,024	2,560	96	Available	5962-985090 1NTB
XQ4028EX-4BG352N	5V	4	Plastic BGA	352	Mil. Ceramic	256	28,000	32,768	18,000-50,000	1,024	2,560	96	Available	5962-985090 1NUA

QPro XQ4000XL QML FPGAs

Table 31: QPro XQ4000XL QML Product Selection Guide

XQ4000XL Part No.	Volt.	Speed Grade	Pkg. Type	No. of Pins	Temp. Range	Max. Avail. I/O	Logic Cells	Logic Gates (no RAM)	Max. RAM Bits (no Logic)	Typical Gate Range (Logic + RAM)	Total CLBs	No. of Flip-Flops	Status	Std. Micro-circuit Dwg. (SMD)
XQ4013XL-3PG223M	3.3V	3	Plastic QFP	223	Mil. Cer.	192	2,432	13,000	18,432	10,000-30,000	576	1,536	Available	5962-9851301QXC
XQ4013XL-3CB228M	3.3V	3	Cer. QFP	228	Mil. Cer.	192	2,432	13,000	18,432	10,000-30,000	576	1,536	Available	5962-9851301QYC/QZC
XQ4013XL-3PQ240N	3.3V	3	Plastic QFP	240	Mil. Plastic	192	2,432	13,000	18,432	10,000-30,000	576	1,536	Available	5962-9851301NTB
XQ4013XL-3BG256N	3.3V	3	Plastic BGA	256	Mil. Plastic	192	2,432	13,000	18,432	10,000-30,000	576	1,536	Available	5962-9851301NUA
XQ4036XL-3PG411M	3.3V	3	Plastic QFP	411	Mil. Cer.	288	3,078	36,000	41,472	22,000-65,000	1,296	3,168	Available	5962-9851001QXC

Table 31: QPro XQ4000XL QML Product Selection Guide (Continued)

XQ4000XL Part No.	Volt.	Speed Grade	Pkg. Type	No. of Pins	Temp. Range	Max. Avail. I/O	Logic Cells	Logic Gates (no RAM)	Max. RAM Bits (no Logic)	Typical Gate Range (Logic + RAM)	Total CLBs	No. of Flip-Flops	Status	Std. Micro-circuit Dwg. (SMD)
XQ4036XL-3CB228M	3.3V	3	Cer. QFP	228	Mil. Cer.	288	3,078	36,000	41,472	22,000-65,000	1,296	3,168	Available	5962-9851001QYC/QZC
XQ4036XL-3HQ240N	3.3V	3	Plastic QFP	240	Mil. Plastic	288	3,078	36,000	41,472	22,000-65,000	1,296	3,168	Available	5962-9851001NTB
XQ4036XL-3BG352N	3.3V	3	Plastic BGA	352	Mil. Plastic	288	3,078	36,000	41,472	22,000-65,000	1,296	3,168	Available	5962-9851001NUA
XQ4062XL-3PG475M	3.3V	3	Plastic QFP	475	Mil. Cer.	384	5,472	62,000	73,728	40,000-130,000	2,304	5,376	Available	5962-9851101QXC
XQ4062XL-3CB228M	3.3V	3	Cer. QFP	228	Mil. Cer.	384	5,472	62,000	73,728	40,000-130,000	2,304	5,376	Available	5962-9851101QYC/QZC
XQ4062XL-3HQ240N	3.3V	3	Plastic QFP	240	Mil. Plastic	384	5,472	62,000	73,728	40,000-130,000	2,304	5,376	Available	5962-9851101NTB
XQ4062XL-3BG432N	3.3V	3	Plastic BGA	432	Mil. Plastic	384	5,472	62,000	73,728	40,000-130,000	2,304	5,376	Available	5962-9851101NUA
XQ4085XL-1PG475M	3.3V	1	Plastic QFP	475	Mil. Cer.	448	7,448	85,000	100,352	55,000-180,000	3,136	7,168	Available	None
XQ4085XL-1CB228M	3.3V	1	Cer. QFP	228	Mil. Cer.	448	7,448	85,000	100,352	55,000-180,000	3,136	7,168	Available	None
XQ4085XL-1HQ240N	3.3V	1	Plastic QFP	240	Mil. Plastic	448	7,448	85,000	100,352	55,000-180,000	3,136	7,168	Available	None
XQ4085XL-1BG432N	3.3V	1	Plastic BGA	432	Mil. Plastic	448	7,448	85,000	100,352	55,000-180,000	3,136	7,168	Available	None

QPro XQR4000XL Radiation Hardened FPGAs

Table 32: QPro XQR4000XL Radiation Hardened Product Selection Guide

XQR4000XL Part No.	Volt.	Speed Grade	Pkg. Type	No. of Pins	Temp. Range	Max. Avail. I/O	Logic Cells	Logic Gates (no RAM)	Max. RAM Bits (no Logic)	Typical Gate Range (Logic + RAM)	Total CLBs	No. of Flip-Flops	Status	Std. Micro-circuit Dwg. (SMD)
XQR4013XL-3CB228M	3.3V	3	Cer. QFP	228	Mil. Cer.	192	2,432	13,000	18,432	10,000-30,000	576	1,536	Available	None
XQR4036XL-3CB228M	3.3V	3	Cer. QFP	228	Mil. Cer.	288	3,078	36,000	41,472	22,000-65,000	1,296	3,168	Available	None
XQR4062XL-3CB228M	3.3V	3	Cer. QFP	228	Mil. Cer.	384	5,472	62,000	73,728	40,000-130,000	2,304	5,376	Available	None

QPro (XQ) Configuration PROMs XC1700D, XQ1701L, XQ18V00

Table 33: Configuration PROM XC1700D, XQ1701L, XQ18V00 Product Selection Guide

QPro PROM Part Number	Voltage	Density	Pkg. Type	No. of Pins	Temp. Range	Status	Std. Microcircuit Dwg. (SMD)
XC17128DDD8M	5V	131,072	Ceramic DIP	8	Mil.	Available	None
XC17256DDD8M	5V	262,144	Ceramic DIP	8	Mil.	Available	5962-9561701MPA
XC1736DDD8M	5V	36,288	Ceramic DIP	8	Mil.	Available	None
XC1765DDD8M	5V	65,536	Ceramic DIP	8	Mil.	Available	5962-9471701MPA
XQ1701LSO20N	3.3V	1,048,576	Plastic Small Outline	20	Mil.	Available	5962-9951401NXB
XQ1701LCC44M	3.3V	1,048,576	Ceramic LCC	44	Mil.	Available	5962-9951401QYA
XQ18V04VQ44N	2.5V	4,194,304	Plastic QFP	44	Mil.	Available	TBD
XQ18V04CC44M	2.5V	4,194,304	Ceramic LCC	44	Mil.	Available	TBD

QPro Radiation Hardened (XQR) Configuration PROMs

Table 34: QPro Radiation Hardened PROM (XQR) Product Selection Guide

PROM Part Number	Volt.	Density	Pkg. Type	No. of Pins	Temp. Range	Status	Std. Microcircuit Dwg. (SMD)
XQR1701LCC44M	3.3V	1,048,576	Ceramic LCC	44	Mil.	Available	TBD
XQR18V04CC44M	2.5V	4,194,304	Ceramic LCC	44	Mil.	Available	TBD

Packages vs. Product Types

Table 35: Package Type vs. Product Device Usage

Type	Pins	Desc.	Device							
BF957	957	Plastic Ball Grid Array (BGA)	Virtex-II							
BG256	256	Plastic Ball Grid Array (BGA)	Spartan/XL	Virtex	QPro Virtex	XC95288XL				
BG352	352	Plastic Ball Grid Array (BGA)	Virtex	Virtex-E	QPro 4KE/EX	XC95216	XC95288			
BG432	432	Plastic Ball Grid Array (BGA)	Virtex	Virtex-E	QPro Virtex	QPro 4KXL				
BG560	560	Plastic Ball Grid Array (BGA)	Virtex	Virtex-E	Virtex-EM					

Table 35: Package Type vs. Product Device Usage (Continued)

Type	Pins	Desc.	Device															
BG575	575	Plastic Ball Grid Array (BGA)	Virtex-II															
BG728	728	Plastic Ball Grid Array (BGA)	Virtex-II															
CB164	165	Top Brazed Ceramic Quad Flat Pack	QPro 4KE/EX															
CB196	196	Top Brazed Ceramic Quad Flat Pack	QPro 4KE/EX															
CB228	228	Top Brazed Ceramic Quad Flat Pack	QPro 4KE/EX	QPro 4KXL	QPro Virtex	Virtex												
CG560	560	Ceramic Column Grid Array (Surface Mount)	QPro Virtex															
CG1156	1156	Fine Pitch Ball Grid Array (BGA)	Virtex-E															
CP56	56	Chip Scale Package	XCR3064XL															
CS144	144	Chip-Scale Ball Grid Array (BGA)	Spartan-II	Spartan-XL	Virtex-II	Virtex-E	XC95144XV	XC95144XL	XCR3128XL									
CS280	280	Chip-Scale Ball Grid Array (BGA)	Spartan-XL	XC95288XV	XC95288XL	XCR3256XL												
CS48	48	Chip Scale Package	XC9536XV	XC9572XV	XC9536XL	XC9572XL	XC9536	XCR3032XL	XCR3064XL									
DD8	8	Ceramic DIP	QPro 1700D															

Table 35: Package Type vs. Product Device Usage (Continued)

Type	Pins	Desc.	Device																			
FF896	896	Fine Pitch Ball Grid Array (BGA)	Virtex-II																			
FF1152	1152	Fine Pitch Ball Grid Array (BGA)	Virtex-II																			
FF1517	1517	Fine Pitch Ball Grid Array (BGA)	Virtex-II																			
FG256	256	Fine Pitch Ball Grid Array (BGA)	Spartan-II	Virtex-II	Virtex-E	XC95288XV	XC95288XL															
FG324	324	Fine Pitch Ball Grid Array (BGA)	XCR3384XL	XCR3512XL																		
FG456	456	Fine Pitch Ball Grid Array (BGA)	Spartan-II	Virtex-II	Virtex-E																	
FG676	676	Fine Pitch Ball Grid Array (BGA)	Virtex-II	Virtex-E	Virtex-EM																	
FG680	680	Fine Pitch Ball Grid Array (BGA)	Virtex-E																			
FG860	860	Fine Pitch Ball Grid Array (BGA)	Virtex-E																			
FG900	900	Fine Pitch Ball Grid Array (BGA)	Virtex-E	Virtex-EM																		
FG1156	1156	Fine Pitch Ball Grid Array (BGA)	Virtex-E																			

Table 35: Package Type vs. Product Device Usage (Continued)

Type	Pins	Desc.	Device										
FT256	256	Fineline Ball Grid Array (BGA)	XCR3256XL	XCR3384XL	XCR3512XL								
HQ208	208	High Heat Dissipation QFP (Plastic)	QPro 4KE/EX	XC95216	XC95288								
HQ240	240	High Heat Dissipation QFP (Plastic)	Virtex	Virtex-E	QPro Virtex	QPro 4KE/EX	QPro 4KXL						
PC20	20	Plastic Leaded Chip Carrier	XC17V00 PROM	XC18V00 PROM	XC17S00 PROM	XC1700E/L							
PC44	44	Plastic Leaded Chip Carrier	XC17V00 PROM	XC18V00 PROM	XC1700E/L	XC9536XV	XC9572XV	XC9536XL	XC9572XL	XC9536	XC9572	XCR3032XL	XCR3064XL
PC84	84	Plastic Leaded Chip Carrier	Spartan/XL	XC9572	XC95108								
PD8	8	Plastic DIP	XC17S00 PROM	XC17S00A	XC1700E/L								
PG156	156	Ceramic Pin Grid Array	QPro 4KE/EX										
PG191	191	Ceramic Pin Grid Array	QPro 4KE/EX										
PG223	223	Ceramic Pin Grid Array	QPro 4KE/EX	QPro 4KXL									
PG299	299	Ceramic Pin Grid Array	QPro 4KE/EX										
PG411	411	Ceramic Pin Grid Array	QPro 4KXL										

Table 35: Package Type vs. Product Device Usage (Continued)

Type	Pins	Desc.	Device										
PG475	475	Ceramic Pin Grid Array	QPro 4KXL										
PQ100	100	Plastic Quad Flat Package	XC9572	XC95108	XC95144								
PQ160	160	Plastic Quad Flat Package	XC95108	XC95144	XC95216								
PQ208	208	Plastic Thin Quad Flat Pack	Spartan-II	Spartan/XL	XC95288XV	XC95288XL	XCR3256XL	XCR3384XL	XCR3512XL				
PQ240	240	Plastic Thin Quad Flat Pack	Spartan/XL	Virtex	Virtex-E	QPro Virtex							
SO8	8	Plastic Small Outline Package	XC1700E/L										
SO20	20	Plastic Small Outline Package	XC17V00 PROM	XC18V00 PROM	XC17S00 PROM	XC17S00A	XC1700E/L						
TQ100	100	Thin Quad Flat Pack	XC9572XV	XC95144XV	XC9572XL	XC95144XL	XC9572	XC95108	XC95144				
TQ144	144	Plastic Thin Quad Flat Pack	Spartan-II	Spartan/XL	XC95144XV	XC95288XV	XC95144XL	XC95288XL	XCR3128XL	XCR3256XL			
VO8	8	Plastic Small Outline Thin Package	XC17V00 PROM	XC17S00A	XC1700E/L								
VQ44	44	Plastic Quad Flat Package	XC17V00 PROM	XC18V00 PROM	XC17S00A	XC1700E/L	XC9536XV	XC9572XV	XC9536XL	XC9572XL	XC9536	XCR3032XL	XCR3064XL
VQ64	64	Plastic Quad Flat Package	XC9536XL	XC9572XL									
VQ100	100	Plastic Very Thin Quad Flat Pack	Spartan-II	Spartan/XL	XCR3064XL	XCR3128XL							

Xilinx Intellectual Property Catalog

Table 36: Intellectual Property Product Selection Guide

Function	Vendor Name	IP Type	Device ⁽¹⁾				Implementation Example			Key Features	Application Examples	Part No./ Product	
			V2	V	S2	S	Occ	MHz	Device				
Basic Elements													
BUFE-based Multiplexer Slice	Xilinx	LogiCORE	V2	V	S2			50%	200	XC4000	Buses up to 64 bits wide, 1 to 64 inputs	Larger tristate multiplexers	Coregen
BUFT-based Multiplexer Slice	Xilinx	LogiCORE	V2	V	S2								Coregen
Binary Counter	Xilinx	LogiCORE	V2	V	S2								Coregen
Binary Decoder	Xilinx	LogiCORE	V2	V	S2								Coregen
Bit Bus Gate	Xilinx	LogiCORE	V2	V	S2								Coregen
Bit Gate	Xilinx	LogiCORE	V2	V	S2								Coregen
Bit Multiplexer	Xilinx	LogiCORE	V2	V	S2								Coregen
Bus Gate	Xilinx	LogiCORE	V2	V	S2								Coregen
Bus Multiplexer	Xilinx	LogiCORE	V2	V	S2								Coregen
Comparator	Xilinx	LogiCORE	V2	V	S2								Coregen
FD-based Parallel Register	Xilinx	LogiCORE	V2	V	S2								Coregen
FD-based Shift Register	Xilinx	LogiCORE	V2	V	S2								Coregen
Four-Input MUX	Xilinx	LogiCORE											Coregen
LFSRs as Functional Blocks in Wireless Apps		Ref Design											XAPP220
LD-based Parallel Latch	Xilinx	LogiCORE	V2	V	S2								Coregen
Parallel-to-Serial Converter	Xilinx	LogiCORE											Coregen
RAM-based Shift Register	Xilinx	LogiCORE	V2	V	S2								Coregen
Register	Xilinx	LogiCORE											Coregen
Three-Input MUX	Xilinx	LogiCORE											Coregen
Two-Input MUX	Xilinx	LogiCORE											Coregen
Communication & Networking													
1024 Channel ADPCM	Amphion Semiconductor	AllianceCORE	V2					89%	50	XC2V500-5	Supports G.721 G.723 G.726 G.726a G.727 G.727a, u-law, a-law	DECT, VOIP, cordless telephony	
16 Channel ADPCM	Amphion Semiconductor	AllianceCORE		V	S2			89%	16	XCV150-6	Supports G.721 G.723 G.726 G.726a G.727 G.727a, u-law, a-law	DECT, VOIP, cordless telephony	
256 Channel ADPCM	Amphion Semiconductor	AllianceCORE	V2	V				66%	30	XCV400E-8	Supports G.721 G.723 G.726 G.726a G.727 G.727a, u-law, a-law	DECT, VOIP, cordless telephony	

Table 36: Intellectual Property Product Selection Guide

Function	Vendor Name	IP Type	Device ⁽¹⁾				Implementation Example			Key Features	Application Examples	Part No./ Product
			V2	V	S2	S	Occ	MHz	Device			
512 Channel ADPCM	Amphion Semi-conductor	AllianceCORE	V2	V			51%	6	XCV400E-8	Supports G.721 G.723 G.726 G.726a G.727 G.727a, u-law, a-law	DECT, VOIP, cordless telephony	
768 Channel ADPCM	Amphion Semi-conductor	AllianceCORE	V2	V			89%	50	XC2V500-5	Supports G.721 G.723 G.726 G.726a G.727 G.727a, u-law, a-law	DECT, VOIP, cordless telephony	
8b/10b Decoder	Xilinx	LogiCORE	V2	V	S2		1 BlkRAM	100	XC2V1000	Industry std. encoding & decoding for serial data transmission	Physical layer of Fiber Channel	Coregen
8b/10b Encoder	Xilinx	LogiCORE	V2	V	S2		1 BlkRAM	100	XC2V1000	Industry std. encoding & decoding for serial data transmission	Physical layer of Fiber Channel	Coregen
ADPCM Speech Codec, 32-Channels	Xilinx	LogiCORE	V2	V	S2		100%	18	XC2S150-6	G.726 8-32 full duplex encoding/decoding; 16-64 encoding and/or decoding	DECT, Voice over IP	DO-DI-ADPCM32
CAM in ATM applications		Ref Design										XAPP202
CDMA Matched Filter Implementation		Ref Design										XAPP212
Cell Assembler (CC-201)	CoreEI Micro-Systems	AllianceCORE		V		S	44%	60	XC4005XL-1	Octet wide operation, HEC computation, cell scrambling	ATM adapter cards, routers, switches	
Cell Delineation (CC-200)	CoreEI Micro-Systems	AllianceCORE		V		S	67%	40	XC4010XL-9	Octet wide operation, HEC verification, cell scrambling	ATM adapter cards, routers, switches	
Convolutional Encoder	Xilinx	LogiCORE	V2	V	S2							Coregen
Convolutional Encoder	TILAB	AllianceCORE		V	S2	S	2%	144	XCV50-6	Code rate, gen. vectors, CMSTR length customizable	Error correction	
CRC10 Generator and Verifier (CC-130)	CoreEI Micro-Systems	AllianceCORE		V		S	22%	20	XCS30-4	Separate generator and verifier blocks, compatible with ITU-T I.363 for AAL3/AAL4	ATM, SONET, and Ethernet	

Table 36: Intellectual Property Product Selection Guide

Function	Vendor Name	IP Type	Device ⁽¹⁾				Implementation Example			Key Features	Application Examples	Part No./ Product
			V2	V	S2	S	Occ	MHz	Device			
CRC32 Generator and Verifier (CC-131)	CoreEI Micro-Systems	AllianceCORE		V		S	43%	29	XCS30-4	Separate generator and verifier blocks, compat with ITU-T I.363 for AAL5	ATM, SONET, and Ethernet	
DES	Memec-Core	AllianceCORE		V	S2	S	79%	25	XC520-4	NIST certified, supports EBC, CBC, CFB, and OFB	Secure communication, data storage	
DES - Triple DES Cryptoprocessor	inSilicon	AllianceCORE		V	S2	S	93%	48	XC2S150-6	Compliant with ANSI X9.52, 128-bit key or two independent 64-bit keys	Secure communication, data storage	
DES Cryptoprocessor	inSilicon	AllianceCORE		V	S2	S	20%	94	XC2S100-6	NIST certified, supports ECB, CBC, CFB, and OFB	Secure communication, data storage	
Designing Convolutional Interleavers with Virtex Devices		Ref Design										XAPP222
Distributed Sample Descrambler	TILAB	AllianceCORE		V	S2	S	14%	74	XCV50-6	Compliant with ITU-T I.432. Parameterizable data width, cell & header length	ATM PHY layer	
Distributed Sample Scrambler	TILAB	AllianceCORE		V	S2	S	9%	104	XCV50-6	Compliant with ITU-T I.432. Parameterizable data width, cell & header length	ATM PHY layer	
DVB Satellite Modulator Core	MemecCore	AllianceCORE		V	S2	S	39%	45-70	XCV50-4	Conforms to ETSI EN 300 421 v1.1.2, selectable convolutional code rate	Digital broadcast, microwave transmitter	
Fast Ethernet Media Access Controller Transmitter and Receiver Cores	CoreEI MicroSystems	AllianceCORE		V	S2	S	90%	50	XCV150-4	IEEE 802.3 compliant RMON, MIBs stats, MII support	Ethernet switched, hub, NICS	
G.711 PCM Codec	Xilinx	LogiCORE		V	S2		12%	44	XCV50	Supports μ -Law or A-Law. ITU G.711 Standard. Even bit inversion for A-Law	Digital telephony, DECT, T1 & E1 Links	DO-DI-G711

Table 36: Intellectual Property Product Selection Guide

Function	Vendor Name	IP Type	Device ⁽¹⁾				Implementation Example			Key Features	Application Examples	Part No./ Product
			V2	V	S2	S	Occ	MHz	Device			
G.711 PCM Compressor	Xilinx	LogiCORE		V	S2		7%	44	XCV50	Supports μ -Law or A-Law, Conforms to ITU G.711 Standard, Even bit inversion (EBI) for A-Law	Digital telephony, DECT, T1 & E1 Links	DO-DI-G711C
G.711 PCM Expander	Xilinx	LogiCORE		V	S2		6%	57	XCV50	Digital telephony, DECT, T1 & E1 Links	Digital telephony, DECT, T1 & E1 Links	DO-DI-G711E
Gold Code Generators		Ref Design										XAPP217
HDLC Controller Core, 32-Channels	Xilinx	LogiCORE	V2	V	S2		68%	56	XC2S50-5	32 full duplex, CRC-16/32, 8/16-bit address insertion/deletion	X.25, Frame Relay, B/D-Channel	DO-DI-HDLC32
HDLC Controller Core, Single-Channel	Xilinx	LogiCORE	V2	V	S2		95%	77	XC2S15-5	16/32-bit frame sequence, 8/16-bit addr insert/delete, flag/zerop insert/detect	X.25, Frame Relay, B/D-Channel	DO-DI-HDLC1
IEEE 802.3 Cyclic Redundancy Check		Ref Design										XAPP209
IMA-32 Inverse Multiplexer for ATM	Applied Telecom	AllianceCORE		V			78%	50	XCV400E-6	Compliant ATM Forum IMA, prog. groups & links, SW driver available	Network adapters, routers, multiplexers	
IMA-8 Inverse Multiplexer for ATM	Applied Telecom	AllianceCORE			S2		100%	50	XC2S150-5	Compliant with ATM Forum IMA, prog. groups & links, SW driver	Network adapters, routers, DSLAMs	
Interleaver Deinterleaver	TILAB	AllianceCORE		V	S2	S	21%	73	XVC50-6	Block & convolutional support. param features. 3GPP, UMTS, GSM, DVB compliant	Channel coding in telecom/wireles, broadcast	
Interleaver/De-interleaver	Xilinx	LogiCORE	V2	V	S2							DO-DI-INTERLEAV
IPlogiCAM Internet Protocol Content Addressable Memory	TILAB	AllianceCORE		V	S2	S	9%	49	XCV50-6	Hardware control blk works with s/w CAM	IP routers	
Lara Networks Search Interface		Ref Design										XAPP242

Table 36: Intellectual Property Product Selection Guide

Function	Vendor Name	IP Type	Device ⁽¹⁾				Implementation Example			Key Features	Application Examples	Part No./ Product
			V2	V	S2	S	Occ	MHz	Device			
MT1F T1 Framer	Virtual IP Group	AllianceCORE					*	*	*	D4, ESF, SLC-96 formats. For XC4000.	DSI trunk, PBX I/F	
Noisy Transmission Channel Model	TILAB	AllianceCORE		V	S2	S	22%	100	XCV50-6	Programmable noise generation profile	Noise emulation in transmission channel	
PARSER: Bit Stream Analyzer and Data Extractor	TILAB	AllianceCORE		V	S2	S	32%	67	XCV50-6	Data syntax analysis of IP, MPEG, ATM	ATM, IP, MPEG	
POS-PHY Level 3 Link Layer Interface Core, 48 Channel	Xilinx	LogiCORE	V2									DO-DI-POSL3LINK48a
POS-PHY Level 3 Link Layer Interface, Single Channel	Xilinx	LogiCORE		V			55%	104	XCV50E-8		Line card for terabit routers & optical switches	DO-DI-POSL3LINK
POS-PHY Level 3 Link Layer Interface, Two Channel	Xilinx	LogiCORE		V			55%	104	XCV50E-8		Line card for terabit routers & optical switches	DO-DI-POSL3LINK
POS-PHY Level 3 Physical Layer Interface Core	Xilinx	LogiCORE		V			52%	104	XCV50E-8		Line card for terabit routers & optical switches	DO-DI-POSL3PHY
POS-PHY Level 4 Multi-Channel Interface Core	Xilinx	LogiCORE	V2									DO-DI-POSL4MC
PPP8 HDLC Core CC318f	CoreEI Micro-Systems	AllianceCORE		V	S2		76%	80	XC2S150-6	RFC1619 (IP&IPX) POS, 16/32 bit FCS generation and verification, stats	Bridges, switches, WAN links	
Reed Solomon Decoder	Amphion Semiconductor	AllianceCORE		V	S2	S	51%	50	XCV100-4	Supports ETSI 300 421, 300 429, >300 Mbps	Error correction	
Reed Solomon Decoder	Memec-Core	AllianceCORE		V	S2	S	83%	73	XCV50-6	Customizable, >580 Mbps	Error correction	
Reed Solomon Encoder	Amphion Semiconductor	AllianceCORE		V	S2	S	11%	82	XCV50-4	Supports ETSI 300 421, 300 429	Error correction	
Reed Solomon Encoder	Memec-Core	AllianceCORE		V	S2	S	13%	113	XCV50-6	Customizable, > 900 Mbps	Error Correction	
Reed-Solomon Decoder	Xilinx	LogiCORE	V2	V	S2	S	65%	112	XC2S100-6	Standard or custom coding, 3-12 bit symbol width, up to 4095 symbols	Wireless, DVB, DVD, HDTV, HD	DO-DI-RSD

Table 36: Intellectual Property Product Selection Guide

Function	Vendor Name	IP Type	Device ⁽¹⁾				Implementation Example			Key Features	Application Examples	Part No./ Product
			V2	V	S2	S	Occ	MHz	Device			
Reed-Solomon Encoder	Xilinx	LogiCORE	V2	V	S2	S	16%	112	XC2S50-6	Standard or custom coding, 3-12 bit symbol width, up to 4095 symbols with 256 check symb.	Wireless, DVB, DVD, HDTV, HD	DO-DI-RSE
Single-Channel XF-HDLC Controller	Memec-Core	AllianceCORE		V	S2		95%	77	XC2S15-5	16/32-bit frame seq, 8/16-bit addr insert/delete, flag/zerop insert/detection	X.25, Frame Relay, B/D-Channel	
T1 Deframer	Xilinx	LogiCORE		V	S2							DO-DI-T1DEFAM
T1/E1 Framer	Xilinx	LogiCORE		V	S2							DO-DI-T1E1FRAM
Turbo Convolutional Decoder	Xilinx	LogiCORE	V2	V						Compatible with 3GPP spec (3G TS25.212 version 3.3.0)	3G Wireless Infrastructure	DO-DI-TURBOCCD
Turbo Convolutional Encoder	Xilinx	LogiCORE	V2	V						MAX* algorithm compliant w/ 3GPP (3G TS 25.212 version 3.3.0), BER=10-6 for 1.5 dB Eb/No, 2 Mbps	3G Wireless Infrastructure	DO-DI-TURBOCCE
Turbo Decoder - 3GPP	SysOn Chip	AllianceCORE	V2	V			88%	65	XC2V2000-5	3GPP/UMTS compliant, 2 Mbps data rate	Error correction, wireless	
TURBO_DEC Turbo Decoder	TILAB	AllianceCORE	V2	V			99%	65	XC2V2000-5	3GPP/UMTS compliant, >2Mbps data rate	Error correction, wireless	
Using Three-State Enable Registers in XLA, XV, and SpartanXL FPGAs		Ref Design										XAPP123
UTOPIA Level-2 PHY Side RX Interface	TILAB	AllianceCORE		V	S2	S	8%	53	XCV50-6	Protocol conversion from Pb (RACE BLNT) to UTOPIA L2, 8/16 bit operation	ATM PHY layer	
UTOPIA Level-2 PHY Side TX Interface	TILAB	AllianceCORE		V	S2	S	10%	61	XCV50-6	Protocol conversion from UTOPIA L2 Pb (RACE BLNT), 8/16 bit operation	ATM PHY layer	

Table 36: Intellectual Property Product Selection Guide

Function	Vendor Name	IP Type	Device ⁽¹⁾				Implementation Example			Key Features	Application Examples	Part No./ Product
			V2	V	S2	S	Occ	MHz	Device			
UTOPIA Level-3 ATM Receiver	inSilicon	AllianceCORE		V	S2	S	5%	164	XCV100E-8	Supports ATM Forum UTOPIA Level-3. Configurable cell format, data width	High capacity ATM switches	
UTOPIA Level-3 ATM Transmitter	inSilicon	AllianceCORE		V	S2	S	6%	150	XCV100E-8	Supports ATM Forum UTOPIA Level-3. Configurable cell format, data width	High capacity ATM switches	
UTOPIA Level-3 PHY Receiver	inSilicon	AllianceCORE		V	S2	S	21%	104	XCV100E-8	Supports ATM Forum UTOPIA Level-3. Configurable cell format, data width, configurable FIFO size	High capacity ATM switches	
UTOPIA Level-3 PHY Transmitter	inSilicon	AllianceCORE		V	S2	S	22%	100	XCV100E-8	Supports ATM Forum UTOPIA Level-3. Configurable cell format, data width, configurable FIFO size	High capacity ATM switches	
UTOPIA Master (CC140f)	CoreEI Micro-Systems	AllianceCORE		V	S2	S	*	*	*	SPHY, MPHY, HEC processing, round robin polling, ind. transmitter receiver	ATM PHY layer	
UTOPIA Slave (CC141)	CoreEI Micro-Systems	AllianceCORE				S	*	*	*	Cell handshake in SPHY mode, 8/16 bit operation, internal FIFO, detects runt cells	ATM PHY layer	
UTOPIA Slave (CC143S)	CoreEI Micro-Systems	AllianceCORE		V	S2	S	26%	79	XCV50-4	Cell handshake in SPHY mode, 8/16 bit operation, 32 bit FIFO interface, detects runt cells	ATM PHY layer	
Viterbi Decoder	Xilinx	LogiCORE	V2	V	S2							DO-DI-VITERBI

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Function	Vendor Name	IP Type	Device ⁽¹⁾				Implementation Example			Key Features	Application Examples	Part No./ Product
			V2	V	S2	S	Occ	MHz	Device			
Viterbi Decoder	TILAB	AllianceCORE		V	S2	S	65%	56	XCV50-6	Radix-2/radix4 architectures, BER, depuncturing. Code rate, constraint length parameterizable	Data transmission, wireless	
XF-UART	Memec-Core	AllianceCORE	V2	V		S	15%	50	XC520-4	UART and baud rate generator	Serial data communication	
Digital Signal Processing												
1024-Point Complex FFT IFFT	Xilinx	LogiCORE	V2	V								Coregen
16-Point Complex FFT / IFFT	Xilinx	LogiCORE	V2	V			40%	123 ns	XCV300E-8	16 bit complex I/O data, 2's complement, forward and inverse transform		Coregen
256-Point Complex FFT / IFFT	Xilinx	LogiCORE	V2	V			47%	6.4µs	XCV300E-8	16 bit complex I/O data, 2's complement, forward and inverse transform		Coregen
32 Point Complex FFT/IFFT	Xilinx	LogiCORE		V	S2							Coregen
64-Point Complex FFT IFFT	Xilinx	LogiCORE	V2	V			33%	1.6µs	XCV300E-8	16 bit complex I/O data, 2's complement, forward and inverse transform		Coregen
Bit Correlator	Xilinx	LogiCORE	V2	V	S2							Coregen
Cascaded Integrator Comb (CIC)	Xilinx	LogiCORE	V2	V	S2							Coregen
Comb Filter	Xilinx	LogiCORE				S						Coregen
Configuring Spartan-II FPGAs from Parallel EPROMs		Ref Design										XAPP178
Direct Digital Synthesizer	Xilinx	LogiCORE	V2	V	S2							Coregen
Distributed Arithmetic FIR Filter	Xilinx	LogiCORE	V2	V	S2							Coregen
Dual-Channel Numerically Controlled Oscillator	Xilinx	LogiCORE		V	S2	S						Coregen
GVA-200A DSP Hardware Accelerator	GV & Assoc.	AllianceCORE				S	NA	NA	*	Ext SRAM I/F	DSP prototyping	
GVA-220 DSP Hardware Accelerator	GV & Assoc.	AllianceCORE				S	NA	NA	*	Ext SRAM I/F, 2 FPGAs	DSP prototyping	

Table 36: Intellectual Property Product Selection Guide

Function	Vendor Name	IP Type	Device ⁽¹⁾				Implementation Example			Key Features	Application Examples	Part No./ Product
			V2	V	S2	S	Occ	MHz	Device			
GVA-250 Virtex DSP Hardware Accelerator	GV & Assoc.	AllianceCORE		V			NA	NA	*	2 FPGAs, 2 SRAMs	DSP prototyping	
GVA-270 Virtex-E DSP Hardware Accelerator	GV & Assoc.	AllianceCORE		V			NA	NA	*	Virtex-E support, 2 FPGAs, ZBT SRAMs	DSP prototyping	
GVA-290 Virtex-E DSP Hardware Accelerator	GV & Assoc.	AllianceCORE		V			NA	NA	*	2 Virtex-E FPGAs, Spartan-II FPGAs, 1 CPLD, Matlab I/F	DSP prototyping	
GVA-300 Virtex-II DSP Hardware Accelerator	GV & Assoc.	AllianceCORE	V2				NA	NA	*	2 Virtex-II FPGAs, Spartan-II FPGAs, 1 CPLD, Matlab I/F	DSP prototyping	
HSA - Wireless/High Speed Analog I/O Module		Ref Design										
LFSR, Linear Feedback Shift Register	Xilinx	LogiCORE	V2	V	S2							Coregen
Nonsymmetric 16-Deep Time-Skew Buffer	Xilinx	LogiCORE				S						Coregen
Nonsymmetric 32-Deep Time-Skew Buffer	Xilinx	LogiCORE				S						Coregen
Numerically Controlled Oscillator	Xilinx	LogiCORE		V	S2	S						Coregen
Parallel Distributed Arithmetic FIR Filter	Xilinx	LogiCORE				S						Coregen
Serial Distributed Arithmetic FIR Filter	Xilinx	LogiCORE				S						Coregen
Symmetric 16 Deep Time-Skew Buffer	Xilinx	LogiCORE				S						Coregen
Transposed Form FIR Filters		Ref Design										XAPP219
Virtex Analog to Digital Converter		Ref Design										XAPP155
Virtex Synthesizable Delta-Sigma DAC		Ref Design										XAPP154
Math Functions												
1s and 2s Complement	Xilinx	LogiCORE				S						Coregen
Accumulator	Xilinx	LogiCORE	V2	V	S2		1%	236	XCV50E-8	1-64 bit inputs, Add, Sub, Add/Sub, Prog feedback scaling	High-perf. DSP application	Coregen
Adder Subtractor	Xilinx	LogiCORE	V2	V	S2							Coregen
Constant Coefficient Multiplier	Xilinx	LogiCORE				S						Coregen

Table 36: Intellectual Property Product Selection Guide

Function	Vendor Name	IP Type	Device ⁽¹⁾				Implementation Example			Key Features	Application Examples	Part No./ Product
			V2	V	S2	S	Occ	MHz	Device			
Constant Coefficient Multiplier - Pipelined	Xilinx	LogiCORE				S						Coregen
Design Tips for Arithmetic Functions		Ref Design										XAPP215
Integrator	Xilinx	LogiCORE				S						Coregen
Multiplier Accumulator	Xilinx	LogiCORE	V2	V	S2							Coregen
Multiplier Generator	Xilinx	LogiCORE	V2	V	S2							Coregen
Parallel Multipliers Area Optimized	Xilinx	LogiCORE				S						Coregen
Pipelined Divider	Xilinx	LogiCORE	V2	V	S2	S						Coregen
Registered Adder	Xilinx	LogiCORE				S						Coregen
Registered Loadable Adder	Xilinx	LogiCORE				S						Coregen
Registered Loadable Subtractor	Xilinx	LogiCORE				S						Coregen
Registered Scaled Adder	Xilinx	LogiCORE				S						Coregen
Registered Serial Adder	Xilinx	LogiCORE				S						Coregen
Registered Subtractor	Xilinx	LogiCORE				S						Coregen
Scaled-by-One-Half Accumulator	Xilinx	LogiCORE				S						Coregen
Sine Cosine Look Up Table	Xilinx	LogiCORE	V2	V	S2	S	4%	140	XCV50E-8	3-10 bit in, 4-16 bit out, 360 degree table for high-speed mod/demod		Coregen
Square Root	Xilinx	LogiCORE				S						Coregen
Twos Complementer	Xilinx	LogiCORE	V2	V	S2							Coregen
Memories & Storage Elements												
170 MHz FIFOs Using the Virtex Block SelectRAM+ Feature		Ref Design										XAPP131
8-Bit Microcontroller for Virtex Devices		Ref Design										XAPP213
Asynchronous FIFO	Xilinx	LogiCORE	V2	V	S2		1 BlkMem	165	XCV50E-8	1-64 bits, 1-4095 words, Dist or Block RAM, independent I/O clock domains	Data Buffering	Coregen
Configuring Virtex FPGAs from Parallel EPROMs with a CPLD		Ref Design										XAPP137
Content Addressable Memory (CAM)	Xilinx	LogiCORE	V2	V	S2							Coregen

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Function	Vendor Name	IP Type	Device ⁽¹⁾				Implementation Example			Key Features	Application Examples	Part No./ Product
			V2	V	S2	S	Occ	MHz	Device			
Data-Width Conversion FIFOs Using Block SelectRAM Memory		Ref Design										XAPP205
Data-Width Conversion FIFOs Using the Virtex-II Block RAM Memory		Ref Design										XAPP261
Designing Flexible, Fast CAMs with Virtex Family FPGAs		Ref Design										XAPP203
Distributed Memory	Xilinx	LogiCORE	V2	V	S2					1-64 bits, 16-256 words, RAM/ROM, optional output regs and pipelining		Coregen
Dual Port Block Memory for Virtex and Virtex-II	Xilinx	LogiCORE	V2	V								Coregen
High Speed FIFOs In Spartan-II FPGAs		Ref Design										XAPP175
Pipelined Delay Element	Xilinx	LogiCORE				S						Coregen
Quad DataRate SRAM Interface for Virtex-II Devices		Ref Design										XAPP262
Registered ROM	Xilinx	LogiCORE				S						Coregen
Registered Single Port RAM	Xilinx	LogiCORE				S						Coregen
Single Port Block Memory for Virtex and Virtex-II	Xilinx	LogiCORE	V2	V								Coregen
Status and Control Semaphore Registers Using Partial Reconfiguration		Ref Design										XAPP153
Synchronous FIFO (Virtex, Virtex-II, Spartan-II)	Xilinx	LogiCORE	V2	V	S2	S						Coregen
Synthesizable 1.6 GBytes/s DDR SDRAM Controller		Ref Design										XAPP200
Synthesizable 200 MHz ZBT SRAM Interface		Ref Design										XAPP136
Synthesizable 266 MBits/s DDR SDRAM		Ref Design										XAPP253
Synthesizable High Performance SDRAM Controller		Ref Design										XAPP134
Using Block RAM for High Performance Read/Write CAMs		Ref Design										XAPP204

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Function	Vendor Name	IP Type	Device ⁽¹⁾				Implementation Example			Key Features	Application Examples	Part No./ Product
			V2	V	S2	S	Occ	MHz	Device			
Using Delay-Locked Loops in Spartan-II FPGAs		Ref Design										XAPP174
Using the Virtex Delay-Locked Loop		Ref Design										XAPP132
Using Xilinx and Exemplar for Incremental Designing (ECO)		Ref Design										XAPP165
Using Xilinx and Synplify for Incremental Designing (ECO)		Ref Design										XAPP164
Virtex Device Quad DataRate (QDR) SRAM Interface		Ref Design										XAPP214
Virtex-II SiberBridge		Ref Design										XAPP254
Xilinx In-System Programming Using an Embedded Microcontroller		Ref Design										XAPP058
Microprocessors, Controllers & Peripherals												
µEBX Reference and Development Platform	NMI Elect.	AllianceCORE		V			NA	NA	NA	Interfaces NMI's MicroEngines to EBX bus	PC104 applications	
µPCI Reference and Development Platform	NMI Elect.	AllianceCORE		V			NA	NA	NA	Interfaces NMI's MicroEngines to PCI bus	PCI ethernet/graphics applications	
16-Word-Deep Registered Look Up Table	Xilinx	LogiCORE				S						Coregen
200MHz UART with Internal 16-Byte Buffer		Ref Design										XAPP223
ARC 32-bit Configurable RISC Processor	ARC Cores	AllianceCORE		V	S2		89%	37	XC2S150-6	4 stage pipeline, 16 single cycle instructions, 3 interrupt exception levels, 24 bit stack pointer	32-bit processing, DSP	
C16450 UART	CAST	AllianceCORE		V	S2		29%	60	XC2S50-6	Independently controlled transmit, receive and data interrupts. 16X clock.	Serial data applications, modems	
C16550 UART with FIFOs	CAST	AllianceCORE		V	S2			51	XC2S50-6	Prog. Data width, parity, stop bits. 16X internal clock, FIFO mode, false start bit detection	Serial data applications, modems	

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Function	Vendor Name	IP Type	Device ⁽¹⁾				Implementation Example			Key Features	Application Examples	Part No./ Product
			V2	V	S2	S	Occ	MHz	Device			
C2901 Microprocessor Slice	CAST	AllianceCORE		V	S2		19%	36	XC2S50-6	Eight function ALU, 4 status flags- Carry, Overflow, Zero and Negative	Simple microcontroller applications	
C2910a Microprogram Controller	CAST	AllianceCORE		V	S2	S	13%	63	XCV50-6	Based on AMD 2910a	High-speed bit slice design	
C6850 Asynchronous Communication Interface Adapter	CAST	AllianceCORE		V	S2		13%	96	XC2S50-6	Peripheral modem control functions, checks parity, overrun, framing errors.	Serial data applications, modems	
C8051 MicroController	CAST	alliance		V	S2		52%	68	XCV200E-8	80C31 instruction set, 8-bit ALU, 8-bit control, 32 bit I/O ports, two 16-bit timer/counters, SFR I/F	Embedded systems, telecom	
C8237 DMA Controller	CAST	AllianceCORE	V2	V	S2		100%	63	XC2V80-5	Four independent DMA channels (expandable), software DMA request	CPU + memory systems	
C8250 UART	CAST	AllianceCORE		V	S2			98	XCV50E-8	UART & Baud rate generator, 16X clock generator, loopback & echo modes	Serial data applications, modems	
C8251 Programmable Communication Interface	CAST	AllianceCORE		V	S2		35%	43	XC2S150-6	Divide by 1/16/64 modes, auto break detection, false start bit detection	Modems, data communication	
C8254 Programmable Interval Timer/Counter	CAST	AllianceCORE		V	S2		38%	66	XCV100E-8	Status feedback, counter latch, Square wave mode, 6 counter modes, binary/BCD count, LSB/MSB R/W	Event counterr, baud rate generator	
C8255A Peripheral Interface	CAST	AllianceCORE		V	S2		10%	227	XCV50E-8	Three 8-bit peripheral ports, 24 programmable IO lines, 8-bit bidi data bus	Processor I/O interface	

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Function	Vendor Name	IP Type	Device ⁽¹⁾				Implementation Example			Key Features	Application Examples	Part No./ Product
			V2	V	S2	S	Occ	MHz	Device			
C8259A Programmable Interrupt Controller	CAST	AllianceCORE		V	S2		28%	47	XC2S50-6	Eight vectored priority interrupts, all 8259/A modes programmable- e.g., special mask, buffer	Real-time interrupt based uP designs	
Compact UART	CAST	AllianceCORE		V	S2	S	7%	142	XCV50-6	1 start bit, 1 stop bit. Polling and interrupt modes	Serial data applications, modems	
Compact Version of D80530 Microcontroller	CAST	AllianceCORE		V	S2		88%	51	XC2S150-6	32-bit I/O, 3 counters, interrupt controller, SFR interface, dual data pointer	Low cost embedded systems, telecom	
CPU + FPGA (Virtex/Spartan-II) MicroEngine Cards	NMI Elect.	AllianceCORE		V	S2		NA	NA	NA	Hitachi SH-4 CPU	Embedded systems	
CPU + FPGA (Virtex-II) MicroEngine Cards	NMI Elect.	AllianceCORE	V2				NA	NA	NA	Hitachi SH-3 CPU	Embedded systems	
D80530 8-bit Microcontroller	CAST	AllianceCORE		V			81%	66	XCV200E-8	32-bit I/O, 3 counters, 27-bit watchdog timer, 3-priority interrupt controller, SFR interface	Embedded systems, telecom	
Data Recovery in Virtex and Virtex-II Devices		Ref Design										XAPP224
Data to Clock Phase Alignment		Ref Design										XAPP225
EP520 SDRAM Controller	Eureka Tech.	AllianceCORE		V	S2		91%	91	XCV50-6	Supports PC100/PC133 SDRAM DIMM, 16 Mb to 256 Mb SDRAM devices	Networking switches, video & image proc.	
Flip805x-PR Core	Dolphin Integ.	AllianceCORE		V	S2	S	68%	20	XC2S150-6	12X faster (average) and code compatible wrt legacy 8051, verification bus monitor, SFR interface	Telecom, industrial, high speed control	
IntelliCore Prototyping System	VAutomation	AllianceCORE					*	*	*	USB, 1394, 1284, RS-232, IVDA I/F	Prototyping	
Interfacing a Virtex-E Device to a MIPS Processor		Ref Design										XAPP192

Table 36: Intellectual Property Product Selection Guide

Function	Vendor Name	IP Type	Device ⁽¹⁾				Implementation Example			Key Features	Application Examples	Part No./ Product
			V2	V	S2	S	Occ	MHz	Device			
Interfacing a Virtex-E Device to a Pentium Processor		Ref Design										XAPP196
LavaCORE Configurable Java Processor Core	Derivation Systems	AllianceCORE	V2	V			38%	20	XC2V1000-5	32b data/address optional DES	Internet appliance, industrial control	
M16450 Universal Asynchronous Receiver Transmitter	Virtual IP Group	AllianceCORE				S	29%	60	XC2S50-6	Independently controlled transmit, receive and data interrupts. 16X clock.	Serial data applications, modems	
M16550A UART with FIFOs	Virtual IP Group	AllianceCORE				S	90%	16	XCS20-4	Prog. Data width, parity, stop bits. 16X internal clock, FIFO mode, false start bit detection	Serial data applications, modems	
M8237 DMA Controller	Virtual IP Group	AllianceCORE					*	*	*	Four independent DMA channels (expandable), software DMA request	Microprocessor based systems	
M8254 Programmable Timer	Virtual IP Group	AllianceCORE		V	S2	S	38%		XCV100E-8	Event counter, baud rate generator	Event counter, baud rate generator	
M8255 Programmable Peripheral Interface	Virtual IP Group	AllianceCORE		V	S2	S	10%	227	XCV50E-8	Three 8-bit peripheral ports, 24 programmable I/O lines, 8-bit bidi data bus	Processor I/O interface	
M8259 Programmable Interrupt Controller	Virtual IP Group	AllianceCORE				S	28%		XC2S50-6	Eight vectored priority interrupts, all 8259/A modes programmable- e.g., special mask, buffer	Real-time interrupt based uP designs	
MicroBlaze Soft Processor	Xilinx	LogiCORE	V2	V	S2		dev depend	125	Virtex-II	Soft RISC Processor, small footprint, high performance	Networking, communications	
NetLogic Processor Offload Design		Ref Design										
R8051 RISC MicroController	CAST	AllianceCORE		V	S2		76%	34	XC2S150-6	12X faster, SRF I/F	Embedded systems	

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Function	Vendor Name	IP Type	Device ⁽¹⁾				Implementation Example			Key Features	Application Examples	Part No./ Product	
			V2	V	S2	S	Occ	MHz	Device				
R80515 High-speed 8-bit RISC Microcontroller	CAST	AllianceCORE		V				56%	42	XCV200E-8	RISC implementation, 8-bit ALU, 8-bit control, 32 bit I/O, 16-bit timer/counters, SFR I/F, ext. memory I/F	High speed embedded systems, audio, video	
SDRAM Controller Core	Rapid Prototypes	AllianceCORE		V	S2				200	XCV100-6	Works with SDRAM/SGRAM, 19-b addr., 32b data, 2-4 banks, burst R&W	Real time processor applications	
Synchronous DRAM Controller	NMI Elect.	AllianceCORE		V	S2			5%	137	XCV50-6	SDRAM refresh, customizable	Embedded systems using SDRAMs	
V8-uRISC 8-bit RISC Microprocessor	VAuto.	AllianceCORE						*	*	*	Proprietary 8-bit processor, 8-bit ALU, 16-bit stack pointer, 33 opcodes, 4 addr. Modes, 2 user opcodes	Embedded systems, 8-bit processing apps.	
XF8250 UART	Memec-Core	AllianceCORE				S		59%	10	XCS10-4	DC to 625K baud	Serial communications	
XF8255 Programmable Peripheral Interface	Memec-Core	AllianceCORE				S		64%	8	XCS05-4	Bit set/reset support	Embedded systems	
XF8256 Multifunction Microprocessor Support Controller	Memec-Core	AllianceCORE				S		89%	10	XCS20-4	Baud rate generator for 13 common baud rates, parallel I/O ports, prog. timer/counters	Communication, embedded systems	
XF8279 Programmable Keyboard Display Interface	Memec-Core	AllianceCORE				S		46%	8	XCS20-4	Eight char keyboard FIFO, 2-key lockout, n-key rollover, 4-16 char display	Embedded systems interface	
XF-TWSI-MS Two-Wire Serial Interface Master-Slave	Memec-Core	AllianceCORE		V	S2	S		24%	59	XCV50-4	I2C-like, multi master fast/std. modes	Embedded systems	
Standard Bus Interfaces													
Arbiter	TILAB	AllianceCORE		V	S2	S			33	XCV50-6	Two priority classes - strong/weak, access counters	General purpose bus arbitration	

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Function	Vendor Name	IP Type	Device ⁽¹⁾				Implementation Example			Key Features	Application Examples	Part No./ Product
			V2	V	S2	S	Occ	MHz	Device			
CAN Bus Interface R3.0	Sci-worx	AllianceCORE		V	S2	S	*	*	*	Supports CAN 2.0A, 2.0B, error handling, stuff bit generation, SRC, individual acceptance filtering	Automotive, network, home automation	
EP100 PowerPC Bus Slave	Eureka Tech.	AllianceCORE		V	S2		20%	80	XCV400E-8	Supports PowerPC 60x bus protocol including PPC 60x, 740, 750, 8260;burst access to async. SRAM	PowerPC peripheral applications	
EP201 PowerPC Bus Master	Eureka Tech.	AllianceCORE		V	S2		3%	80	XCV400-6	Supports PowerPC 60x bus protocol including PPC 60x, 740, 750, 8260; separate addr/data bus tenure	PowerPC peripheral applications	
PCI32 Single-Use for Spartan	Xilinx	LogiCORE			S2	S	dev depend				PC add-in boards, CPCI, Embedded	DO-DI-PCI32-SP
PCI32 Virtex Interface	Xilinx	LogiCORE	V2	V	S2	S	dev depend	66	Several	Fully v2.2 compliant, guaranteed PCI timing, 3.3/5V, zero wait-state, CPCI hot-swap friendly. (S2 66 MHz available from Design Services)	PC add-in boards, CPCI, Embedded	DO-DI-PCI32-IP
PCI32 Virtex Interface Design Kit	Xilinx	LogiCORE	V2	V	S2	S	dev depend	66	Several	Fully v2.2 compliant, guaranteed PCI timing, 3.3/5V, zero wait-state, CPCI hot-swap friendly. (S2 66 MHz available from Design Services)	PC add-in boards, CPCI, Embedded	DO-DI-PCI32-DKT
PCI64 & 32 IP Only	Xilinx	LogiCORE	V2	V	S2		dev depend	66	Several			DO-DI-PCI-AL

Table 36: Intellectual Property Product Selection Guide

Function	Vendor Name	IP Type	Device ⁽¹⁾				Implementation Example			Key Features	Application Examples	Part No./ Product
			V2	V	S2	S	Occ	MHz	Device			
PCI64 Virtex Interface	Xilinx	LogiCORE	V2	V	S2		dev depend	66	Several	Fully v2.2 compliant, guaranteed PCI timing, 3.3V, zero wait-state, CPCI hot-swap friendly	PC boards, CPCI, Embedded, high performance video, gb ethernet	DO-DI-PCI64-IP
PCI64 Virtex Interface Design Kit	Xilinx	LogiCORE	V2	V	S2	S	dev depend	66	Several	Fully v2.2 compliant, guaranteed PCI timing, 3.3V, zero wait-state, CPCI hot-swap friendly	PC boards, CPCI, Embedded, hipervideo, gb ethernet	DO-DI-PCI64-DKT
PCI-X 64-bit/66MHz Interface for Virtex-E	Xilinx	LogiCORE	V2	V			30%	66	XCV300E-8	Fully v1.0 compliant, assured PCI-X timing, 3.3-V. (Virtex-II support available via upgrade)	Server, Embedded, gb ethernet, U320 SCSI, Fibre Ch, RAID cntl, graphics	DO-DI-PCIX64-VE
PowerPC 60X Bus Interface to a Virtex-E Device		Ref Design										XAPP246
VtoolsD Windows Device Driver Development Kit	Xilinx	LogiCORE				S						
Video & Image Processing												
1-D DCT/IDCT Forward and Inverse Discrete Cosine Transform	Xilinx	LogiCORE	V2	V	S2							Coregen
2-D DCT/IDCT Forward and Inverse Discrete Cosine Transform	Xilinx	LogiCORE	V2	V	S2						Image processing, video phone, color laser printers	DO-DI-DCTIDCT
DCT - IDCT Forward and Inverse Discrete Cosine Transform	inSilicon	AllianceCORE		V	S2	S	86%	29	XC2S100-6	DCT & IDCT, one clock cycle per sample. 38 MHz when operated as DCT	JPEG, MPEG, H261 designs	
FIDCT Forward/Inverse Discrete Cosine Transform	TILAB	AllianceCORE		V	S2		77%	78	XCV200-6	DCT for 8X8, 16X16, IDCT IEEE1180-1990 compliant	JPEG, MPEG, H.26X	
Inverse Discrete Cosine Transform (IDCT) Implementation in Virtex for MPEG Video Applications		Ref Design										XAPP208

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Function	Vendor Name	IP Type	Device ⁽¹⁾				Implementation Example			Key Features	Application Examples	Part No./ Product
			V2	V	S2	S	Occ	MHz	Device			
JPEG CODEC	inSilicon	AllianceCORE		V	S2	S	75%	20	XCV400E-8	Conforms to ISO/IEC Baseline 10918-1, 4 quantization tables, 4 Huffman tables. Stallable	Video editing, digital camera, scanners	
Longitudinal Time Code Generator	Deltatec	AllianceCORE		V			12%	85	XCV100-4	SMTPE/EBU compliant, PAL/NTSC, lock-on external video reference	Audio/Video recording and editing equipment	
RGB2YCrCb Color Space Converter	Perigee, LLC	AllianceCORE		V	S2	S	22%	202	XCV100E-8	One clock cycle throughput	HDTV, real time TV output modulation	
RGB2YCrCb Color Space Converter Core	Xilinx	LogiCORE		V	S2							DO-DI- RGB2YCRCB
RGB2YUV Color Space Converter Core	Xilinx	LogiCORE		V	S2							DO-DI- RGB2YUV
YCrCb2RGB Color Space Converter	Xilinx	LogiCORE		V	S2	S						DO-DI- YCRCB2RGB
YCrCb2RGB Color Space Converter	Perigee, LLC	AllianceCORE		V	S2	S	16%		XCV100E-8	One clock cycle throughput	HDTV, real time video	
YUV2RGB Color Space Converter	Xilinx	LogiCORE		V	S2							DO-DI- YUV2RGB
* Contact vendor for details.												
The latest IP Catalog information is always at www.xilinx.com/ipcenter												

