CLEAR LOGIC

Sales Outlook

Product Availability

MAX 7000

Expectations

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Sales Outlook

◆ **First product announced January, 1998**

◆ **Over 150 product orders shipped**

◆ **First orders booked in February**

◆ **First revenue shipments in April**

◆ **Extremely positive customer reception**

◆ **More New Products**

➡ *CL8000*

➡ *CL7000, CL7000E, CL7000S, CL7000A*

➡ *CL10K, CL10KA*

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Introducing CL7000 LPLD™ Families

◆ LPLD: Laser-Processed Logic Device

➡ *The Ideal Drop-In Replacement for Altera MAX CPLDs*

➡ *Functionally Identical to "Pre-Programmed" CPLDs*

➡ *20% To 50% Lower Price vs. Altera*

➡ *No Up-Front Charges or NRE*

➡ *First Articles in Two Weeks*

➡ *Production Four to Six Weeks ARO*

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Product Road Map

Product Family	Altera Equivalent	Planned Devices		First Samples
CL8000A	FLEX 8000A	CL8282A CL8452A CL8636A	CL8820A CL81188A	1Q 98
CL7000 CL7000E	MAX 7000 MAX 7000E	CL7096 CL7128E CL7160E	CL7192E CL7256E	4Q 98
CL7000S	MAX 7000S	CL7128S CL7160S	CL7192S CL7256S	4Q 98
CL7000A	MAX 7000A	CL7128A CL7192A CL7256A	CL7384A CL7512A	1Q 99
CL10K	FLEX 10K	CL10K10 CL10K20 CL10K30	CL10K50 CL10K100	2Q 99
CL10KA	FLEX 10KA	CL10K30A CL10K50A	CL10K100A CL10K250A	3Q 99

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Fully Interchangeable With Altera FLEX8000 and MAX7000
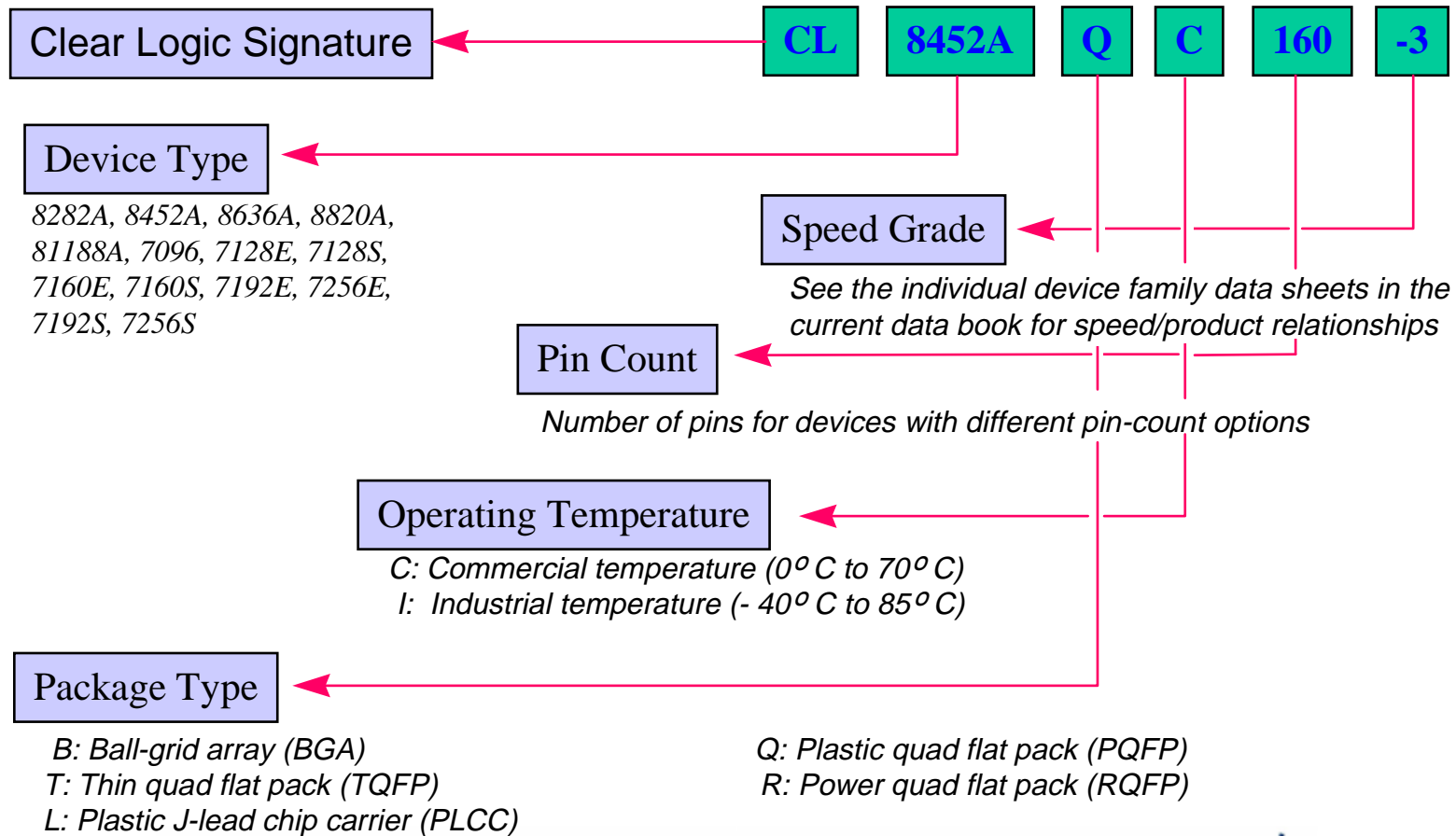
◆ **No Changes to Circuit Board**

◆ **Run-Time Functionality Timing**

◆ **Participates in Configuration Loading (FLEX 8000) or "Instant on"**

◆ **Mix and Match Clear Logic w/ Altera**

Altera's FLEX8000 and MAX7000 represent approximately 70% of their business

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Product Ordering Information

| Clear Logic Signature | | **CL** | **8452A** | **Q** | **C** | **160** | **-3** |

Device Type

8282A, 8452A, 8636A, 8820A, 81188A, 7096, 7128E, 7128S, 7160E, 7160S, 7192E, 7256E, 7192S, 7256S

Speed Grade

See the individual device family data sheets in the current data book for speed/product relationships

Pin Count

Number of pins for devices with different pin-count options

Operating Temperature

C: Commercial temperature (0º C to 70º C)
I: Industrial temperature (- 40º C to 85º C)

Package Type

B: Ball-grid array (BGA)
T: Thin quad flat pack (TQFP)
L: Plastic J-lead chip carrier (PLCC)

Q: Plastic quad flat pack (PQFP)
R: Power quad flat pack (RQFP)

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CL7000 Product Family

Parameter	CL7096	CL7128E CL7128S	CL7160E CL7160S	CL7192E CL7192S	CL7256E CL7256S
Useable Gates	1,800	2,500	3,200	3,750	5,000
Macrocells	96	128	160	192	256
Logic Blocks	6	8	10	12	16
Max user I/O pins	79	100	104	124	164
t_{PD} (ns)	7.5 10 12 15	7.5 10 12 15 20	7.5 10 12 15 20	7.5 10 12 15 20	7.5 10 12 15 20
t_{CNT} (MHz)	76.9 90.9 100 125	62.5 76.9 90.9 100 125	62.5 76.9 90.9 100 125	62.5 76.9 90.9 100 125	62.5 76.9 90.9 100 125
Packages	68 pin PLCC 84 pin PLCC 100 pin PQFP	84 pin PLCC 100 pin PQFP 100 pin TQFP 160 pin PQFP	84 pin PLCC 100 pin PQFP 100 pin TQFP 160 pin PQFP	160 pin PQFP	160 pin PQFP 208 pin PQFP 208 pin RQFP

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What's the Difference Between a 7000<u>S</u> & 7000<u>E</u>?

◆ **A 7000E is usually more expensive than an equivalent 7000S device**

◆ **7000S has built-in JTAG support to simplify device & system testing**

◆ **7000S offers 6 nsec propagation delay**

◆ **7000S has in-system programmability (ISP) to allow for easy prototyping and simplifies manufacturing flow**

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What's the Difference Between Altera's EPM7000S Family & Clear Logic's CL7000S Family?

◆ **Clear Logic will cost less because of our SMALLER DIE SIZE!**

◆ **Clear Logic devices do not offer ISP, but not a problem because only a small portion of their customers utilize this feature**

◆ **Clear Logic devices require no programming which will delight most Altera users**

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MAX7000A Family

◆ **The 3.3-V Next-Generation MAX Architecture**

◆ **ISP**

◆ **Multi Volt Interface**

◆ **Programmable power-saving mode**

➤ **Not generating significant revenue at this time**

➤ **Clear Logic is prioritizing on "S" and "E" versions, and will do "A" versions in 1999**

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Markets That Are Driving
Altera's FPGA and CPLD Business

◆ **Data Communications**   **58%**

➡ *Networking (Routers and Hubs)*

➡ *Telecom (Transmission, Switches and PBX)*

➡ *Adapter Cards*

◆ **Computer**   **19%**

➡ *Raid System (High End Disk Storage)*

➡ *Workstation*

➡ *Printers*

➡ *Multi Media*

➡ *Servers*

◆ **Industrial Instrumentation**   **14%**

➡ *Process Control*

➡ *Testers*

➡ *Robotics*

➡ *Copiers*

◆ **Others**   **9%**

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CL7000 Promotion

◆ **Intensive PR programming starting November 98**

◆ **Direct mail**

◆ **Excellent literature**

➡ *New Sales Presentation*

➡ *Reliability data*

➡ *Data Books*

➡ *Application Notes*

✚ Timing Compatibility

✚ 100% Fault Coverage

◆ **The "Estimator"**

➡ *Computer Program Compares LPLD or LASIC to ASIC*

◆ **First class web site**

➡ *Includes Data Sheets & Application Notes*

◆ **New First Article form**

➡ *(One form for 8K & 7K products)*

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Clear Logic: The Ultimate MAX 7000 REPLACEMENT

◆ **Quick, Easy Path To Lower Cost & Power**

◆ **No Customer Re-design or Test Vector Creation**

◆ **No NRE Charges**

◆ **No Minimum Order Quantities**

◆ **Short Lead-times for Prototypes AND Production**

◆ **"Standard" Cancellation, Reschedule, and Return Policies**

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Clear Logic's Expectations

◆ **Continue to sell our CL8000 family!**

➡ *FLEX 8000 is still being designed in to new programs*

➡ *We still need to identify and win more existing EPF8000 biz*

➡ *Emphasize our "instant on" option that's available on CL8000 family*

◆ **Identify and book CL7000 business!**

➡ *Report to your Clear Logic Sales Manager all EPM7000 business identified that has a annual usage of greater than 2,000 units per year*

◆ **Promote Clear Logic's broad offering of products**

➡ *Inform Altera users our Product road map and benefits*

◆ **Have fun and make a lot of money selling Clear Logic!**

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