



# digital SET-TOP boxes

## An Ideal Application

# for SPARTAN FPGAs

**Digital set top boxes are a catalyst for consumer-based computing, and they hasten the shift towards a networked home.**

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**A**ccording to market researchers, the digital set-top box (DSTB) market is projected to grow at a compound annual growth rate approaching 17% over the next few years. Production is anticipated to double between 1999 and 2002, to over forty million units a year.



Today, most set top boxes deliver minimal functionality, and the market remains fragmented with varying levels of features and disparate standards. In addition, cable suppliers are seeking to expand services and features, and include the functions currently offered by other consumer appliances, to justify increased fees. This is an ideal application for the flexibility, low cost, and time-to-market benefits of Spartan FPGAs.

### Possible Features

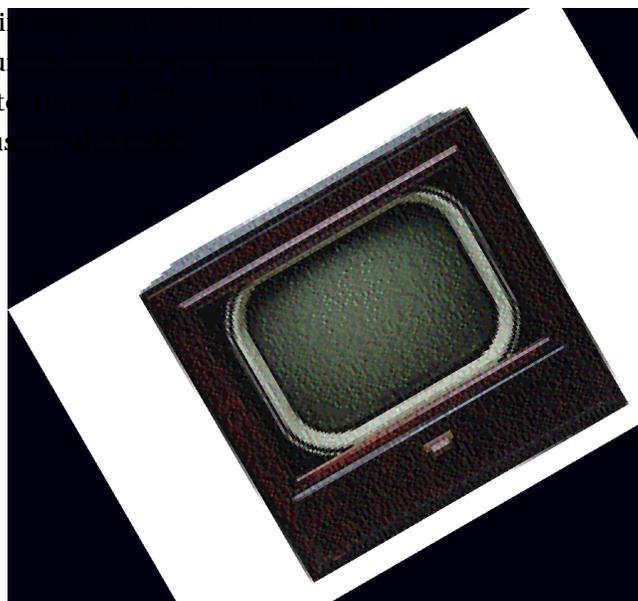
Some of the possible features that can be offered by DSTBs:

- Phone caller ID displayed to the television screen.

- E-commerce for grocery shopping, Web browsing, and banking.
- Infotainment such as interactive games, Video on Demand, on-line casinos.
- E-mail.
- Videoconferencing.
- Downloading music files from the internet.
- Recording television programs.

### Market Structure

In the set top box market, a small number of producers dominate. However, standards still remain uncoordinated, and the resulting architecture is confusing.



market is essentially a subscriber-based business where the service providers furnish the hardware for free. Recently, the digital satellite industry also began adopting this approach by offering a rental option for set-top boxes.

### The Collective DSTB Market

The DSTB market is composed of three competing technologies:

- **Digital Terrestrial** systems use conventional antennas, and are already in limited use in Europe, with broader service launches expected over the next few years. Japan also expects to launch Digital Terrestrial services in the 2003 timeframe. Because it leverages the existing infrastructure, this technology is expected to exhibit explosive growth.
- **Digital Cable** is a conversion of existing analog cable distribution systems, and broadcasters have been swift to implement these standards.
- **Digital Satellite** technology is still in its infancy, offering lower cost distribution, service delivery to thinly populated regions, and ease of upgradeability. Standards for Digital Satellite systems are not consistent between broadcasters.

### Conclusion

DSTB designers must optimize for both price and performance in an increasingly competitive marketplace. Plus, they must provide more functionality and create robust designs that offer flexibility for varying standards and for backward and forward compatibility. This is an impossible task for ASICs, and that's why the Spartan FPGA family is a key component of any DSTB strategy. **Σ**