



## Spartan-3E Display Development Kit

In Partnership with Tokyo Electron Device, Ltd.



### Digital Display Technology Challenge

- Constant market pressure to rapidly implement new functionality and the latest standards on digital systems displays.
- Demand for better image quality, multiple memory interfaces, and varying form factors
- Choosing the right technology to provide flexibility in building a display product portfolio for a wide range of applications

### Spartan-3E FPGA Display Solution

- The Spartan-3E Display Development Kit is a versatile platform to test and develop digital image processing and interconnectivity
- Design with LVDS, mini-LVDS, and RSDS interconnects I/O standards
- This Xilinx Solution answers your needs with pre-verified IP for FPD/Link, TCON, and image enhancement

### The Spartan-3E Display Development Kit simplifies image enhancement for next generation digital TVs and displays.

#### Design for Dynamic Market Landscape

The exploding market for digital displays has put pressure on developers to continuously add more functionality at lower costs. Users need to keep up with the constantly changing standards. Spartan-3 generation FPGAs provide flexibility, shortens development time, features, and price-points that cater to high-volume, display applications.

#### The Standards and References You Need

Build image processing applications with the Spartan-3E FPGA with support for high-speed connectivity standards such as LVDS, mini-LVDS, RSDS and PPDS interfaces - key links to leading-edge digital display devices from flat-panel LCDs, plasma displays, rear projection, mobile hand-set, human-machine interfaces, and automotive applications.

In addition, the development kit offers a 7:1 LVDS Rx/Tx display link, and image processing reference designs. These designs include: Color Temperature Correction (CTC) that supports three different color temperature values; support for Precise Gamma Correction (PGC); and an Image Dithering Engine (IDE). On board reference designs and expansion cards for connectivity allow you to test the system quickly and precisely.

## Finish Faster With a Complete Development Kit

The Spartan-3E Display Development Kit provides the user a complete development system to quickly test the Spartan-3E FPGA for digital image processing applications. The kit comes with a development board equipped with a Spartan-3E 1.6M gate device, and various subsystems such as 512Mbit DDR SDRAM, 16Mbit SPI flash memory device, four I/O expansion ports, serial RS232 channels, and more. Two header expansion cards, and both Tx, as well as Rx expansion cards are included to provide DVI interfacing.

| Spartan-3E Display Development Kit Specifications |   |
|---|---|
| Parameter   | Description   |
| Xilinx FPGA Device                                | XC3S1600E (FG484C Package)  |
| On-board Memory                                   | 8MBit Xilinx Platform Flash configuration PROM<br>16 Mbit SPI Serial Flash  |
| DDR SDRAM   | 512Mbit (16bit x 4); 2 channels with 32bits   |
| I/O Connectors                                    | 4 High-speed differential I/O<br>• 6 data channels or five data channels plus clock per connector<br>Supports multiple differential I/O standards (eg. LVDS, RSDS, mini-LVDS)<br>Supports up to 24 single-ended I/O |
| Configuration Connectors                          | 1x6 JTAG Pin Header<br>2x7 (2mm pitch) PC4 JTAG IDT Connector   |
| Serial Ports                                      | 1, nine-pin RS232 (DTE and DCE-style)   |
| Expansion Cards                                   | DVI Rx and DVI Tx daughter boards   |
| External PLL                                      | Supports varying input clock frequencies  |
| Push Buttons                                      | Four push button switches, One Hardware Reset   |
| LED   | Twelve discrete LEDs  |
| Power   | 12 VDC, 4 Amps  |
| Board Size  | 7.9" x 9.1" x 0.1" (200mm x 230mm x 1.6mm)  |
| Development Kit Part Number                       | HW-SPAR3E-DISP-DK-UNI-G   |

## Xilinx Partners Provide Pre-Verified IP Solutions

Xilinx has teamed up with key partners that have developed image processing hardware and IP designed for the Spartan-3E FPGA for image enhancement. Contact them directly to get more information on their IP.

Tokyo Electron Devices - Under the brand Inrevium, designed the kit's development board and hardware interface for DVI, DDR SDRAM and I/O. Additional boards and expansion cards are available directly from them. Contact them at [www.inrevium.jp/eng](http://www.inrevium.jp/eng).

Digital Display Corporation - Developed IP for Sharpness Enhancement, Motion Adaptive Temporal Noise Reduction, De-interlacing Artifact Filter, Brightness and Contrast Adjustment, Favorite Color Transform, and more. Contact them at [www.digidescorp.com](http://www.digidescorp.com).

Apical - Developed reference for Noise Reduction: Temporal and Intra-Frame noise reduction, Color Correction reference designs, as well as dynamic gamma correction engine. Contact them at [www.apical-imaging.com](http://www.apical-imaging.com).

## Take the Next Step

Get your Spartan-3E Display Development Kit today.  
[www.xilinx.com/s3EDisplayDevKit](http://www.xilinx.com/s3EDisplayDevKit)



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