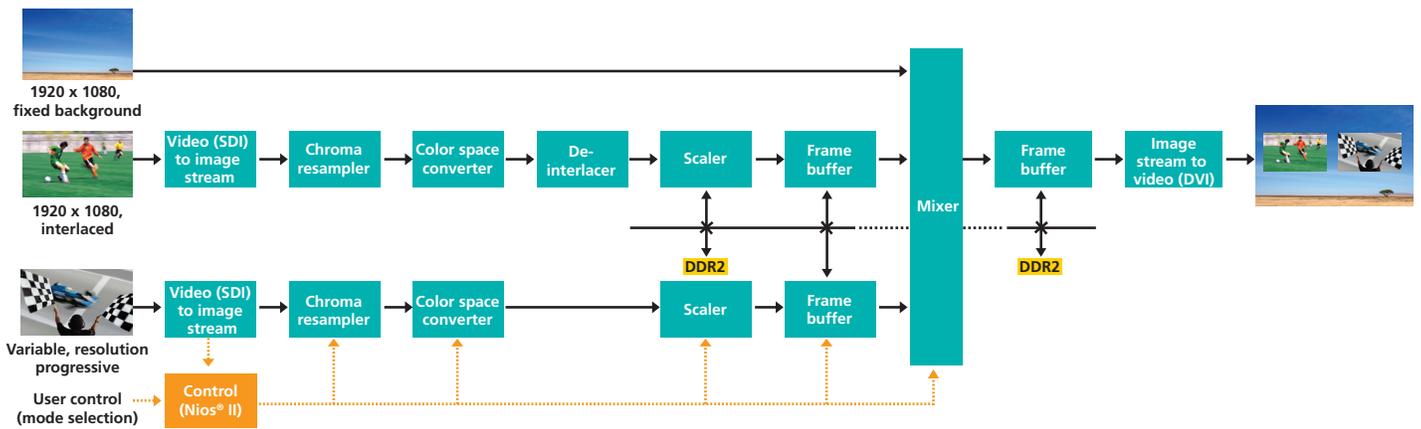# ALTERA®

Start your high-definition video design today

1080p video framework from Altera

Altera's 1080p video framework accelerates broadcast system design by giving you off-the-shelf building blocks that free you to focus on product differentiation.

As full high-definition television (HDTV) becomes more common in living rooms around the world, it's time for 1080p performance to become more pervasive in video processing equipment. Now, with Altera's comprehensive 1080p video framework, you can get to market fast with products that deliver the razor-sharp images that consumers expect.

Altera's 1080p video framework includes ready-to-use, pre-verified video and image processing functions, along with development boards and reference designs. The processing functions can be configured and parameterized to handle full high-definition (HD) video (1080p). The functions are also SOPC Builder-ready and use a common interface known as Avalon® Streaming Interface, making it easy for you to connect these functions with your own custom logic blocks. With SOPC Builder, you can easily integrate different components into your system. While reducing your development risks, these flexible functions also free you to focus on more complex tasks, such as product differentiation and system-level optimization.

The above diagram shows one of Altera's available reference designs, a two-channel compile time parameter-izable video processing system that captures and processes 1080p video. Channel 1 accepts interlaced video using an SDI interface, converting the video into progressive video. Channel 2 accepts progressive video of any resolution. The two inputs are mixed, scaled, and output on a digital video interface (DVI) at 1080p.

Using the video and image processing blocks and development kits, we've developed 1080p-capable reference designs which address key challenges in creating studio and broadcast applications. Use these reference designs alone or as a starting point to develop your 1080p systems.

Altera 1080p video framework development kits

Board	Device	PC interface	Video I/O	Video framework reference design
Altera® Audio Video Development Kit, Stratix® GX Edition	EP2SGX90	1GbE, USB	Serial digital interface (SDI), Asynchronous Serial Interface (ASI), digital video interface (DVI)	Yes
GiDEL Stratix III broadcast kit	1 to 4 EP3S340 devices	PCI Express	SDI	Yes
Altera Video Development Kit, Cyclone® III Edition	EP3C120	USB, Ethernet	DVI	Yes
Microtronix Cyclone III broadcast kit (ViClaro III HD Panel Display Interface – Video IP Development Kit)	EP3C120	PCI Express	SDI, DVI, high-definition multimedia interface (HDMI)	Yes

Flexible devices and a head start on your design

The 1080p video framework blocks work with key Altera programmable logic devices (PLDs), including our high-density Stratix series FPGAs, low-cost transceiver-based Arria™ GX FPGAs, and our low-cost Cyclone series FPGAs. The transceiver-based device in the Stratix series, the Stratix II GX FPGA, is ideal for digital video production equipment. Its architecture includes 20 high-speed transceivers that can run up to 6.375 Gbps, high-performance digital signal processing (DSP) blocks, up to 6.7 Mbits of embedded TriMatrix memory, and up to 130K equivalent logic elements (LEs). The high-density, high-performance Stratix III family devices are ideal for 1080p video processing applications. The Stratix III architecture includes 1067-Mbps DDR3 memory support, high-performance DSP blocks, up to 16 Mbits of embedded TriMatrix memory, up to 340K equivalent LEs, and flexible I/O standards, making 1080p video processing manageable.

Boost your design productivity

Our Quartus® II design software is number one in performance and productivity for CPLD, FPGA, and ASIC designs. Easy to use and known for its fast compile times, Quartus II software lets you dramatically improve your productivity compared to traditional FPGA design flows. With its SOPC Builder feature and our 1080p video framework, you can easily connect your video datapaths to external processor interfaces and external memory interfaces.

From flexible devices to reusable intellectual property (IP) building blocks, easy-to-use software, and capability-rich development kits, you can count on Altera to help you achieve your broadcast system design goals.

Want to dig deeper?

To learn more about how Altera can help with your video processing applications, contact your local FAE or sales representative, or visit **www.altera.com/broadcast.**