

Altera's High-Performance Platform For Ultra HD Video Applications

Broadcast technology vendors today face a daunting dilemma: how to efficiently handle the trend towards 4K resolution and higher channel density, while still responding to price pressures from customers and competitors?

Altera's Stratix® V Advanced Systems Development Kit was designed to solve this problem.

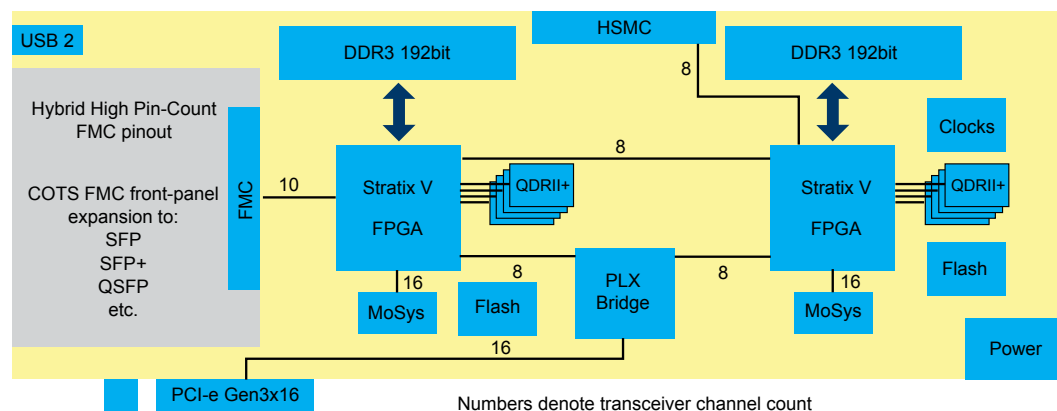
This kit is the ultimate platform engineered to accelerate real-time high-performance video design:

Features and Benefits

Applications	Benefits
High resolution	The kit features a PCI Express®s (PCIe®) Gen3 x16 interface, plus the processing power, memory bandwidth, and I/O connectivity to handle "beyond high definition (HD)" formats and resolutions, even ultra-HD format (UHDTV)
High density	The front-panel I/O could easily accept 10 3G-SDI signals, via popular broadcast connections like mini-BNC or SFP+. The I/O expansion is capable of 100 Gbps in aggregate - equivalent to over 30 Full HD channels encapsulated in standards such as Gigabit Ethernet (GbE) or Infiniband
High frame rate	The kit features dual Stratix V FPGAs with >1.2M logic elements (LEs) in total, and >1500 Gbps of external memory bandwidth from two sets of 192-bit DDR3 plus two serial SRAM Bandwidth Engine devices from MoSys—enough to handle the most complex frame interpolation and conversion algorithms

All of the above features are packed into a PCIe form-factor compliant board, allowing plug-in use with both custom-built and COTS IT servers. The kit's system-level design enables broadcast customers to leverage the IT industry's economy of scale and to drive down total system cost. Furthermore, all board design files are included, so you can quickly create cost-optimized derivatives.

In addition, a complete video Board Support Package (BSP) is provided by OmniTek, an industry leader in broadcast test and measurement equipment. The BSP includes example designs, application software, drivers, and debug tools. Unlike typical FPGA kits, the Stratix V Advanced Systems Development Kit is a complete out-of-box solution that enhances the productivity in advanced system-level video development.



Block diagram of the Stratix V Advanced Systems Development Kit

Stratix V Advanced Systems Development Kit Features

- Two 28-nm Altera® Stratix V FPGAs
- >1500 Gbps total external memory throughput
- PCIe Gen3 x16 bandwidth
- PCIe form-factor compliant
- FPGA Mezzanine Card (FMC) front-panel expansion, for connectivity via popular standards such as QSFP and SFP+
- High-Speed Mezzanine Card (HSMC) expansion for lab use
- Complete BSP with drivers and example video application software

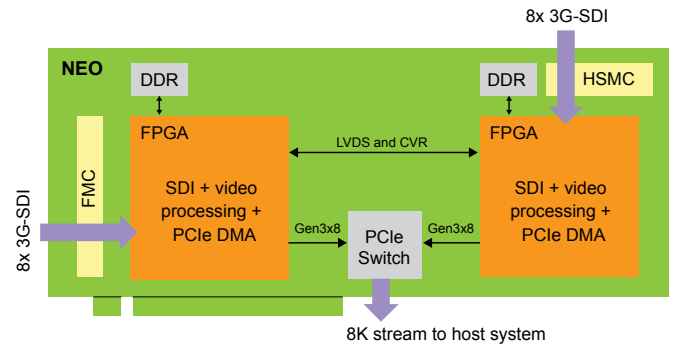


When combined with SFP+ products, such as those from Embrionix's line of video emSFP® modules, this powerful flexibility allows customers to rapidly release products today, while future-proofing the hardware with simple SFP+ module upgrades.



Embrionix's embedded SFP modules for high-density video connectivity

8K UHD TV Ingest Example



The ability to ingest 8K ultra-HD illustrates the power of this platform.

- A 8K 60fps video stream can enter the board via 16 3G-SDI signals
- The FPGA and memory subsystems have adequate resources to perform 8K video processing and encoding functions
- The final video stream can enter the next stage of file-based workflow via PCIe, for example for storage or non-linear editing

Want to dig deeper?

To learn more about the Stratix V Advanced Systems Development Kit, and how it can help you leverage the convergence of broadcast and IT, contact your Altera sales representative or FAE or visit www.altera.com.

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