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### **Altera, Micron announce FPGA, HMC interoperability**

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Altera Corporation and Micron Technology recently demonstrated the interoperability between Altera's Stratix V FPGAs and Micron's hybrid memory cube ([HMC](#)), which both companies say will allow system designers to accurately gauge the benefits of HMC with FPGAs and [SoCs](#) for advanced communications and computing designs. This also indicates that production support of HMC will be realised with Altera's Generation 10 product line.

HMC provides system performance with lower power-per-bit. The company says it delivers up to 15 times the bandwidth of a DDR3 module and uses 70 per cent less energy and 90 per cent less space than existing technologies. HMC's abstracted memory allows designers to focus more on leveraging HMC's features and performance than on navigating various memory parameters required to implement basic functions. It also manages error correction, resiliency, refresh, and other parameters exacerbated by memory process variation.

Arria 10 FPGAs and SoCs are the first device families in the Generation 10 portfolio and will be the first devices to support HMC technology in volume production. Leveraging an architecture optimised for TSMC's 20 nm process, Arria 10 FPGAs and SoCs will use HMC to extend the benefits by providing both 15 per cent higher core performance than today's highest performance Stratix V FPGAs and up to 40 per cent lower power compared to the lowest power Arria V midrange FPGAs. Arria 10 FPGAs and SoCs will offer up to 96 transceiver channels.

Stratix 10 FPGAs and SoCs are designed to improve applications across communications, military, broadcast and compute and storage markets. These applications often require the highest memory bandwidth, which drives the need for an HMC-ready architecture. Leveraging Intel's 14 nm Tri-Gate process and an architecture that integrates with HMC technology, Stratix 10 FPGAs and SoCs will enable system solutions with an operating frequency over one gigahertz, and two times the core performance of current high-end 28 nm FPGAs. Stratix 10 devices will also allow customers to achieve up to a 70 per cent reduction in power consumption at performance levels equivalent to the previous generation.

Altera Stratix V FPGAs are available now in volume production. The Stratix V and HMC demonstration is accessible for evaluation and will be in production with Arria 10 devices. First samples of Arria 10 devices will be available in early 2014, with Quartus II design software support available now in early access. Altera will have 14 nm Stratix 10 [FPGA](#) test chips in 2013 and design software support in 2014. Micron will begin a general sampling of HMC later this year, with volume production ramping in 2014.

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