# Dual Fixed and Floating Point C6670 Multicore DSP Processing Engine
XMC–8320

XMC

Description

Powerful, high-performance fixed-point and floating-point DSP signal processing engine in an XMC form factor.

Key Features

- Two TI quad-core TMS320C6670 DSPs
- Fixed and floating point up to 26.6 GMacs per core @ 1 GHz / 16 GFlops per core @ 1 GHz
- 1 GB of DDR3 SDRAM per DSP
- High-speed 50 Gbit TI hyperlink interprocessor communications (between DSPs)
- XMC module supporting PCI Express x8 Gen 2 (VITA 42.3) (4 GB/s full-duplex)
- Front panel connectors: AIF (2 ports, 4 lanes each) to enable connection to remote radio heads, and GigE (2 ports)
- Secondary XMC connector: high-speed serial I/O SRIO x6, AIF x2, SGMII x2, and GPIO x30, RS-232 x2, and SPI
- C6670 is 100% backward compatible with software for C64x+ and C67x devices
- Available in PC server, 3U VPX, and AMC form factors
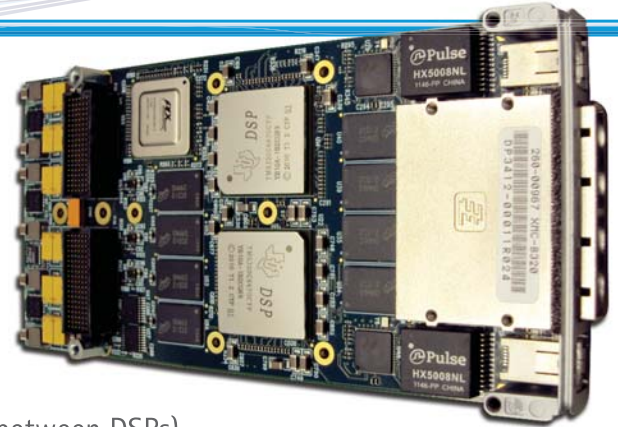
Sample Applications

- Satellite Communications (SATCOM) including satellite earth stations
- LTE/WiMAX development and test
- Industrial Control
- Signals Intelligence (SIGINT-COMINT/ELINT)
- Software Defined Radio (SDR)
- Cellular base station development and test
- High density DSP processing
- Wireless base station processing

Features of the C6670 DSP

Please refer to TI datasheets for full details: http://www.ti.com/product/tms320c6670

- 4 cores
- Wireless coprocessors such as FFT, Viterbi, Turbo, and others
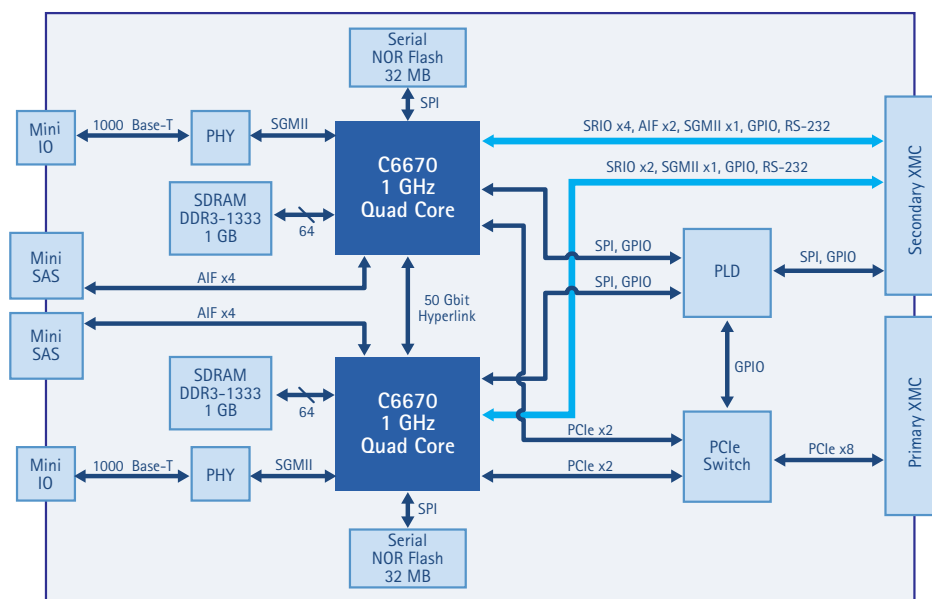- Antenna interface (AIF) for OBSAI/CPRI

Figure 1. XMC-8320 block diagram

Specifications

[general]	Processors	Two 1 GHz TMS320C6670 fixed-point and floating-point DSPs from Texas Instruments
	Memory	1 GB of DDR3-1333 SDRAM per DSP
[external interfaces]	PCIe	From each DSP to PCIe switch: PCIe x2 Gen 2
		From PCIe switch to primary XMC VITA 42.3 connector: PCIe x8 Gen 2 (4 GB/s full duplex)
	I/O	Front panel: AIF (2 ports Mini SAS connector, 4 lanes each) and GigE (2 ports Mini IO)
		Secondary XMC connector: SRIO (6 lanes), AIF (2 lanes) and SGMII (2 lanes), RS-232, SPI
		Single-ended GPIO: 30 (8 dedicated pins from each DSP to secondary XMC connector, 14 configurable pins from each DSP or PCIe switch to secondary XMC (factory build option))
	JTAG Connection	Available for debug support via connector accessible on solder side of the board
[onboard fabric]	Between DSPs	High-speed 50 Gbps TI hyperlink interprocessor communications
[performance]		2 quad-core DSPs per XMC module
	Fixed point	up to 26.6 GMacs per core @ 1 GHz
	Floating point	up to 16 GFlops per core @ 1 GHz
[host requirements]	Supported Carriers	PC Desktop/Server: XMC-to-PCIe Carrier Board
		3U VPX: XMC-to-VPX Carrier Board
		AMC: XMC-to-AMC Carrier Board, single width full height
		Alternative carriers available upon request. Please contact Spectrum Sales.
	Supported Host OS	Red Hat Linux
[development software]	quicComm	The quicComm software suite is available on both the host and target processors. quicComm provides functions such as:
		• Configuration and control
		• Initiating PCIe DMA data transfers
		It also provides a complete set of examples such as data flows
[other software]	Debug Support	Support for TI's Code Composer Studio via JTAG emulator is provided (JTAG emulator sold separately)
[electrical]	Supply Voltage (DC)	+5V or +12V on the VPWR inputs
	Power Estimate	30-50 watts (application dependent)
[mechanical]	Size	Standard VITA 42 XMC (149 mm (height) x 74 mm (width))
[environmental]	Operating Temperature	Operating temperature range of 0 to 50° C
	RoHS	6 of 6 compliant
[future options]		Future options may be implemented at the discretion of Vecima Networks Inc. or its subsidiaries based on market demand.**
	Processors	TI 1.2 GHz TMS320C6670 fixed-point and floating-point DSPs
		TI TMS320C6678, C6674, C6672, C6671 fixed-point and floating-point DSPs

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