

AMC-2C6678

DATASHEET

A high performance AMC card based on TI's TMS320C6678 DSPs and Xilinx Virtex 6, with high speed, flexible I/O

16 DSP cores with shared memory, ideal for a range of high performance DSP applications

Front panel I/O options: triple SFP+ to FPGA, or dual mini-SAS. Front panel or AMC sync

Flexible, high bandwidth off-board communications via Gen2 RapidIO



KEY FEATURES

- Dual TMS320C6678 octal-core DSPs
- Xilinx Virtex-6 FPGA, LX240T-2 standard, up to LX550T possible
- Multiple banks of DDR3 SDRAM for both DSPs and FPGA
- Flash memory
- IDT CPS-1848 Serial RapidIO switch
- Broadcom BCM5389 Ethernet switch
- Separate "glue logic" for board configuration and management
- Three front panel SFP+ optical interfaces to the FPGA configurable as a range of standards
- Dual mini-SAS; to FPGA and SRIO
- Timing and synchronisation from front panel or backplane clock I/O
- Single width Full Size PICMG AMC.0 R2.0 Advanced Mezzanine Card

RESULTING BENEFITS

- ⇒ The latest high performance TI DSPs
- ⇒ Cost effective, high density device; largest FPGA available if required
- ⇒ Latest external memory technology with multiple high bandwidth buses
- ⇒ Stores multiple FPGA images & software
- ⇒ SRIO V2.1 at up to 20Gbps per port
- ⇒ Gigabit Ethernet to all main devices
- ⇒ Allows control, FPGA configuration and FLASH reprogramming over SRIO/SPI
- ⇒ Flexible high-speed optical links, suitable for a range of applications.
- ⇒ Flexible high-speed cabled connectivity
- ⇒ Syncs easily to other equipment.
- ⇒ Works with industry standard MicroTCA chassis; can also run standalone

The CommAgility AMC-2C6678 is a high performance DSP/FPGA based processing card in the extremely compact Advanced Mezzanine Card form factor. It is powered by two of the latest Texas Instruments TMS320C6678 DSPs plus a high-density Xilinx Virtex-6 FPGA. It is ideal for a range of high performance DSP/FPGA processing applications including telecoms and image processing.

Serial RapidIO at up to 20Gbps per port is supported by an IDT CPS-1848 Gen2 SRIO switch. As standard, the board provides three front panel SFP+ optical interfaces that link directly to the FPGA, or as an alternative, dual mini-SAS connectors for up to 40 Gbps of front panel I/O. Should applications require timing and synchronisation, this is achieved via the front panel or backplane clock I/O.



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HARDWARE SPECIFICATIONS

DSP: 2 x TMS320C6678 DSPs, each with:

- 1.25 GHz clock speed
- 1 Gbyte x64 DDR3-1600 SDRAM
- 16 Gbps, 4x SRIO V2.1 link to switch
- 8 Gbps, 2x PCI Express link to FPGA
- Hyperlink50 bus (to other DSP)
- Single Gigabit Ethernet link to switch

FPGA: Xilinx Virtex-6™ FPGA:

- 256 Mbytes x16 DDR3-1066 SDRAM
- 512 Mbytes x32 DDR3-1066 SDRAM
- 128 Mbytes x16 parallel FLASH
- Dual 20Gbps 4x SRIO V2.1 to switch
- Three Gigabit Ethernet links to switch
- 4x GTX to AMC ports 20-17
- Configuration from FLASH or SRIO

Glue: Embedded glue logic for configuration of FPGA, general board control, Flash update. Controlled from SRIO or SPI.

Timing:

- Front panel clock input or output
- AMC Telecom clock A-D support
- Configurable PLL and jitter cleaner based on TI CDCE62005 device

Front panel I/O:

- Standard: Triple SFP+ to FPGA GTX at up to 6.25 Gbaud
- Optional: Dual mini-SAS configured as 4x SRIO, 4x FPGA GTX
- SMB for sync clock I/O

Form Factor:

- Single-width, full-size Advanced Mezzanine Card, AMC.0 Rev 2.0 compliant
- IDT CPS-1848™ switch for AMC.4 compliant 20 Gbps x4 connections to AMC ports 4-7 and 8-11
- Broadcom BCM5389 switch for AMC.2 compliant GigE to AMC Ports 0 and 1
- Hot swap support

Debug:

- Breakout board for debug and RS-232
- Separate FPGA JTAG debug connector
- RS-232 headers for each DSP
- Optional MICTOR connector to FPGA

Module Management Controller:

- AMC.0 IPMB_L, FRU EEPROM data
- Power & reset, health monitoring

ENVIRONMENT/EMC/SAFETY

- Operating temp: 0-40°C ambient
- Power consumption: up to 48W max
- Designed for NEBS/ETSI compliance when used in appropriate chassis
- 2004/108/EC and FCC EMC compliant
- 2002/95/EC RoHS, 2002/96/EC WEEE and 2006/95/EC LVD compliant

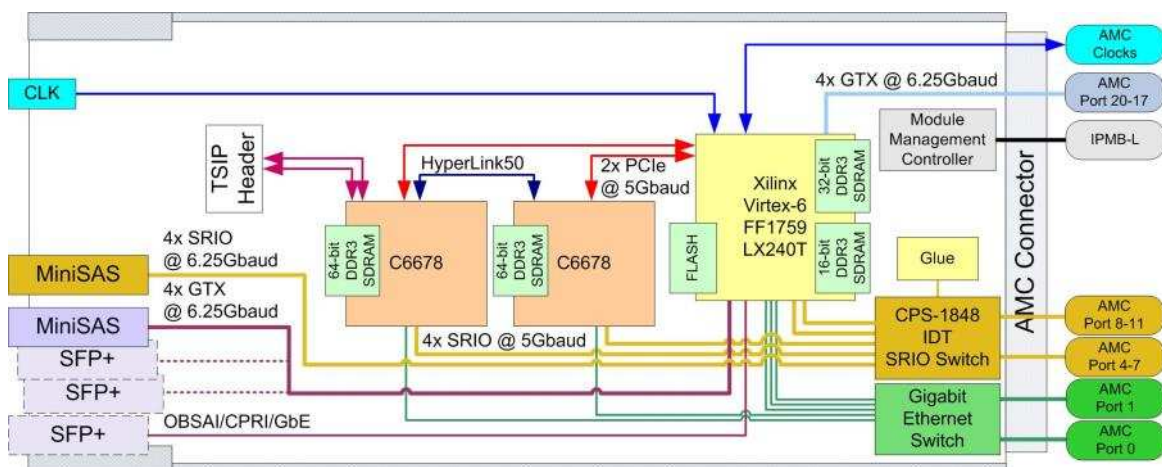
SOFTWARE

Management: Full embedded suite based on Pigeon Point™ Software.

FPGA: Xilinx ISE and EDK project to demonstrate configuration functionality; MicroBlaze BSL including Flash update.

DSP: Full Board Support Libraries

Contact CommAgility for further details of software partners.



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OEM PARTNERSHIP SERVICES:

IN DEVELOPMENT: Support and training; hardware customisation; software and FPGA development.

IN PRODUCTION: lead-time reduction; extended warranty; and repair; quick turn repairs and/or spares stocking.

EXTENDED LIFE: obsolescence management; guaranteed lifecycle; Escrow.

LICENSING is offered for high volume projects.