

AMC-3C87F

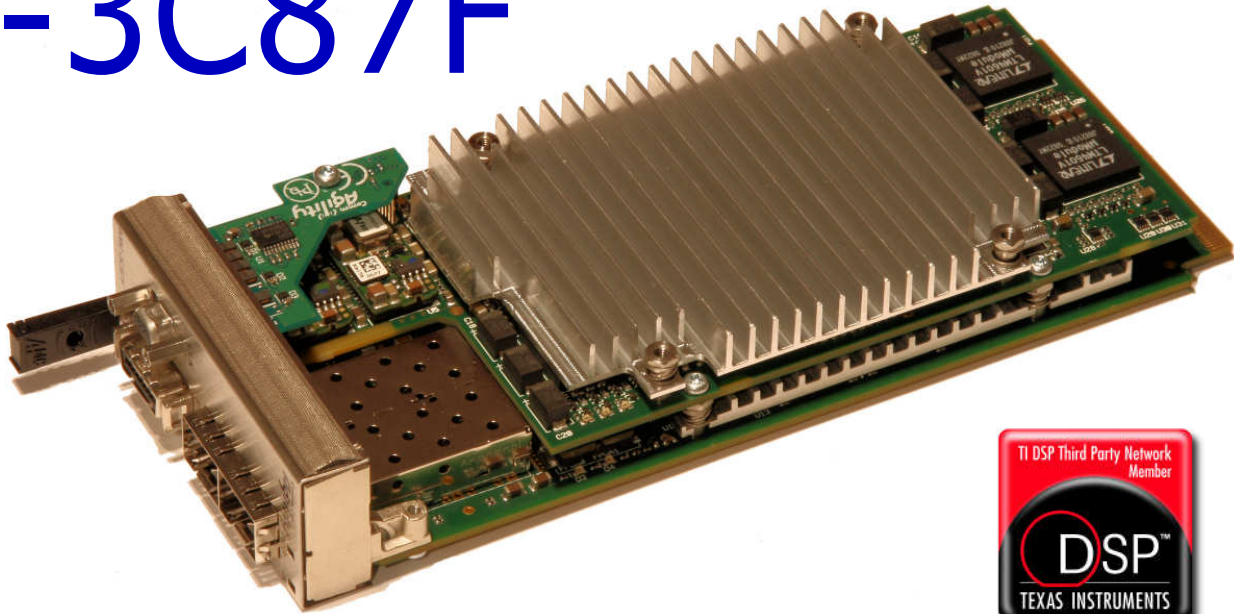
DATASHEET

A high performance DSP/FPGA based AMC card for WiMAX and LTE base station and test applications

Optical SFP sockets for interfaces to CPRI RE/REC and OBSAI RP3-01, with flexible sync options

Together with software partners, can offer a complete WiMAX PHY in a single width AMC, up to 3 sector MIMO

Multiple 10 Gbps Serial RapidIO and Gigabit Ethernet backplane connections for larger systems



KEY FEATURES

- ◆ Three Texas Instruments TCI6487 multi-core DSPs running at 1GHz
- ◆ Xilinx Virtex-5 SX95T FPGA, customer programmable (alternatives also possible)
- ◆ Dual highly flexible optical front panel interfaces, for wireless radio head or other high speed data links
- ◆ Advanced clock recovery and synchronisation options including master and slave modes; AMC, front panel and GPS clocks
- ◆ Full Serial RapidIO and Gigabit Ethernet infrastructure with on-board switch devices
- ◆ Single width, full-size PICMG AMC.0 R2.0 Advanced Mezzanine Card
- ◆ Developed for use in OEM products
- ◆ Engineered with custom heatsinks for optimum thermal performance
- ◆ Software and firmware library support
- ◆ Software partners for WiMAX

RESULTING BENEFITS

- + High performance DSP resource for the latest wireless baseband applications
- + Flexible FPGA resource for interfacing and DSP co-processing
- + Industry standard CPRI and OBSAI links to wireless radios, units under test, or other optical data links such as SRIO
- + Covers multiple requirements for Base Stations and Test Equipment; GPS clock sync avoids a separate card in the system
- + Dependable high-bandwidth interconnects both on and off card, up to 10Gbps per link
- + Works with Industry standard MicroTCA chassis and ATCA cutaway carriers
- + Reduces risk and speeds time to market
- + Minimises thermal integration issues in customer systems
- + Fast route to application code porting
- + Complete base station PHY layer solution

The CommAgility AMC-3C87F is a single width, full-size Advanced Mezzanine Card with exceptional processing performance and bandwidth, for the latest wireless baseband applications. A total of nine 1GHz DSP cores and a Xilinx Virtex-5 SX95T FPGA allow an application to be partitioned and optimised for most effective use of system resources.

High bandwidth optical interfaces can be installed in the dual SFP sockets, providing an optical CPRI/OBSAI antenna interface or other options including an optical Ethernet backhaul or Serial RapidIO. Linked to these interfaces is a highly flexible, low jitter programmable PLL circuit, allowing a wide range of wireless synchronisation options including a low cost 1 PPS GPS clock.

A range of build options are available, and further customisation is possible in volume, to enable the best technical and commercial fit to a customer application to be achieved.



CommAgility Ltd
Loughborough, UK

sales@commagility.com
www.commagility.com

Tel: +44 1509 228866
Fax: +44 8452 991150

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HARDWARE SPECIFICATIONS

FPGA: Xilinx Virtex-5™ FPGA. Standard configuration is SX95T-2, options include LX110T, LX155T, FX100T. With:

- ♦ 2 independent banks of 128Mbytes x16 DDR2-600 SDRAM
- ♦ 128Mbytes of parallel FLASH
- ♦ 10Gbps 4x SRIO
- ♦ 2 Full-duplex Gigabit Ethernet ports
- ♦ 4x RocketIO™ to front panel 10Gbps CX4 connector, option to AMC ports 17-20

DSPs: Three 1GHz multicore TMS320TCI6487 DSPs. TCI6488 option. Each DSP has:

- ♦ 128Mbytes x16 DDR2-667 SDRAM
- ♦ Two 1x SRIO ports to switch
- ♦ One Gigabit Ethernet port to switch
- ♦ Four Antenna Interface Links
- ♦ DSP boot options include FLASH, SRIO and Ethernet

Debug: DSP or FPGA JTAG debug via CommAgility Breakout Board (AMC-BB)

Antenna Interface: 2 SFP sockets for optical CPRI RE/REC and OBSAI RP3-01 compliant antenna interface links, connected to FPGA RocketIO. Also usable for other optical links such as SRIO, GigE or Aurora. Data rate up to 4Gbps per link.

Clock Synchronisation: Low-jitter VCXO based PLL, digitally controlled from the FPGA. Allows clock synchronisation and distribution from an external 30.72 MHz or 1PPS GPS clock via AMC backplane, front panel (option) or SFP SERDES. IEEE1588 is also possible.

Serial RapidIO: 10Gbps 4x infrastructure using Tundra Tsi578™ switch:

- ♦ AMC.4 compliant 10Gbps 4x connections to AMC ports 4-7 and 8-11
- ♦ Dedicated 10Gbps 4x link to FPGA
- ♦ Optional Front Panel 10Gbps 4x link

Ethernet: Gigabit Ethernet infrastructure using Broadcom BCM5389™ switch:

- ♦ AMC.2 (1000BASE-BX) compliant connections to AMC Ports 0 & 1
- ♦ Full-duplex 1Gbps links

IPMI: ATmega128 IPMI controller:

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

Form Factor: Advanced Mezzanine Card

- ♦ AMC.0 Rev 2.0 compliant
- ♦ Full-size, single-width
- ♦ AMC.2 GigE and AMC.4 4x SRIO
- ♦ Hot swap support

ENVIRONMENTAL/EMC/SAFETY

- ♦ Operating temperature: 0-40 °C ambient
- ♦ Power consumption: up to 48W max, dependent on SFPs used and FPGA load
- ♦ Designed for NEBS and 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 Low Voltage Directive compliant

SOFTWARE SPECIFICATIONS

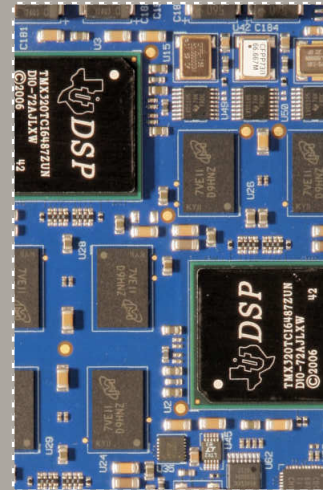
FPGA: to demonstrate configuration and functionality; Xilinx ISE and EDK project

MicroBlaze Board Support Library (BSL): support for board setup and interfaces, self test and FLASH update

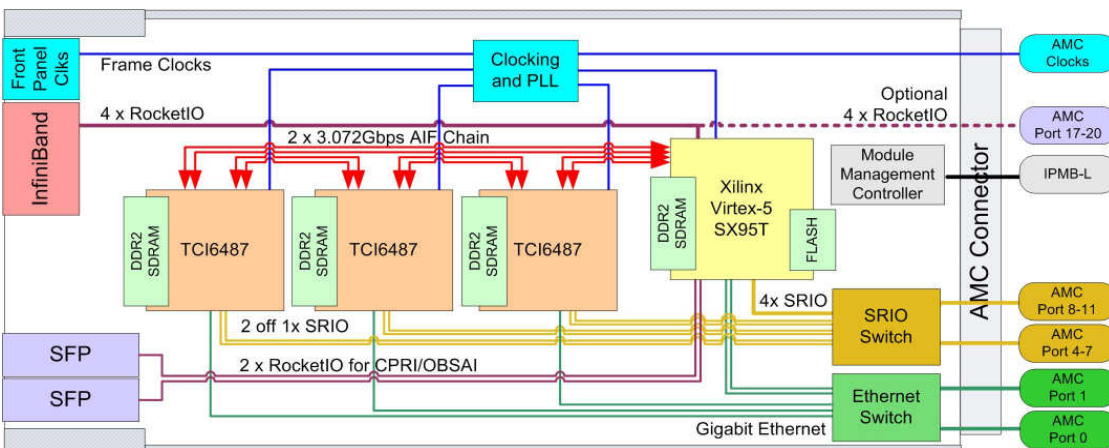
MMC: full management suite based on PigeonPoint BMR software

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DSP Board Support Libraries for board setup and interfaces



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OEM PARTNERSHIP SERVICES:

IN DEVELOPMENT support and training; hardware customisation; software and FPGA development.

IN MANUFACTURE leadtime reduction; extended warranty and repair; quick turn repairs and/or spares stocking. Licensing of designs considered for high volumes.

DURING LIFECYCLE obsolescence management; guaranteed lifecycle; Escrow.

AdvancedMC™

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CommAgility Ltd
Loughborough, UK

sales@commagility.com
www.commagility.com

Tel: +44 1509 228866
Fax: +44 8452 991150

