

AMC-3C87F3-GPS

DATASHEET

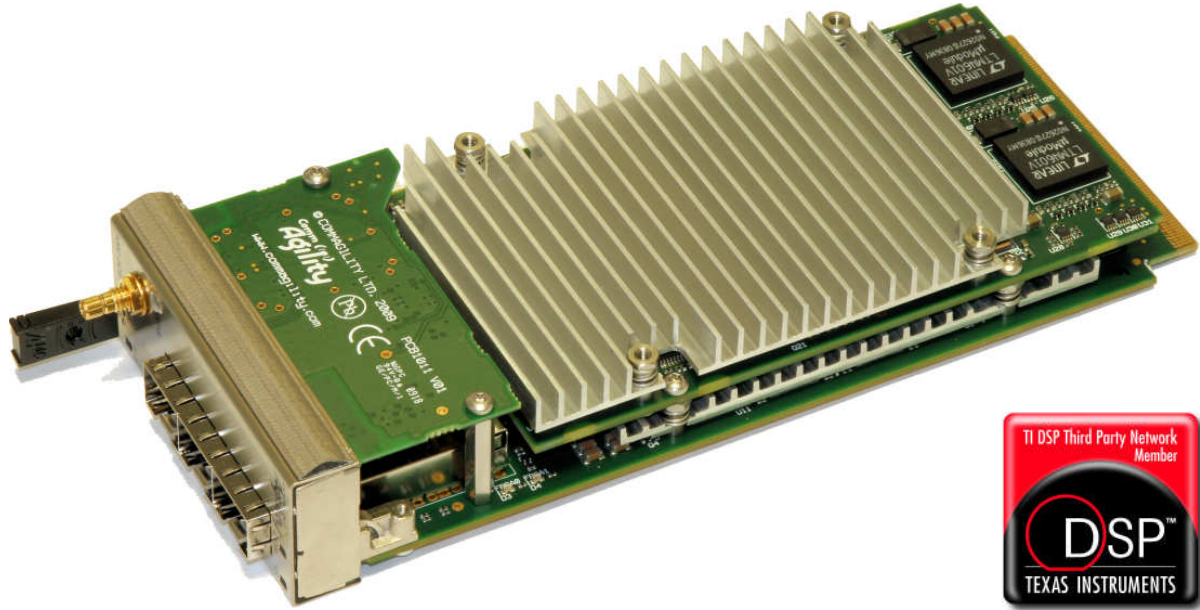
An optimised and highly integrated AMC card designed for next generation Wireless PHY applications

Three CPRI/OBSAI interfaces, supporting direct connections to Remote Radio Heads for full three sector operation

Includes a GPS receiver for timing synchronisation, with optional OCXO for holdover support

Tested with WiMAX PHY software from Tata Elxsi and remote radio heads from AxisNT

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



KEY FEATURES

- ◆ Three Texas Instruments TCI6487 multi-core DSPs running at 1 or 1.2 GHz
- ◆ Xilinx Virtex-5 LX110T FPGA, customer programmable (alternatives also possible)
- ◆ Three flexible optical front panel interfaces to wireless radio heads
- ◆ Integrated GPS receiver to provide base station timing synchronisation
- ◆ OCXO option for timing holdover when GPS signal is not present
- ◆ 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
- ◆ Software and firmware library support
- ◆ Partners for WiMAX software and Remote Radio Heads

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 Remote Radio Heads
- + Increased integration to save the cost and complexity of an external GPS receiver
- + Addresses operator requirements for resilience and increased network uptime
- + Dependable high-bandwidth interconnects both on and off card, up to 10 Gbps per link
- + Works with industry standard MicroTCA chassis and ATCA cutaway carriers
- + Reduces risk and speeds time to market
- + Fast route to application code porting
- + Provides a complete base station PHY layer solution

The CommAgility AMC-3C87F3-GPS is a highly integrated single width, full-size Advanced Mezzanine Card targeted to the latest wireless baseband applications. A total of nine 1GHz DSP cores and a Xilinx Virtex-5 FPGA allow an application to be partitioned and optimised for most effective use of system resources.

The three SFP sockets support CPRI/OBSAI antenna interfaces, allowing direct connection to Remote Radio Heads for 3 sector operation. Timing synchronisation is provided by an integrated GPS receiver with an optional OCXO for improved holdover performance. Timing can also be sourced or driven via the AMC clocks or an optional front panel SMB connector.

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.



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HARDWARE SPECIFICATIONS

FPGA: Xilinx Virtex-5™ FPGA. Standard configuration is LX110T-2. With:

- ♦ 1 or 2 independent banks of 128 Mbytes x16 DDR2-600 SDRAM
- ♦ 128 Mbytes of parallel FLASH
- ♦ 10 Gbps 4x SRIO
- ♦ 3 Full-duplex Gigabit Ethernet ports

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

- ♦ 128 Mbytes x16 DDR2-667 SDRAM
- ♦ Two 1x SRIO ports to switch
- ♦ One Gigabit Ethernet port to switch
- ♦ Four Antenna Interface Links
- ♦ DSP boot over SRIO or Ethernet

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

Antenna Interface: 3 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 or GigE.

GPS Receiver and clocking: Integrated GPS receiver for Stratum 2 level synchronisation providing, plus GTP clocks for CPRI/OBSAI. Optional OCXO for holdover, exceeds Stratum 3 performance.

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

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

Ethernet: Gigabit Ethernet infrastructure using Broadcom BCM5389™ switch:

- ♦ AMC.2 (1000BASE-BX) compliant connections to AMC Ports 0 & 1
- ♦ Full-duplex 1 Gbps 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: support for board setup and interfaces, self test and FLASH update

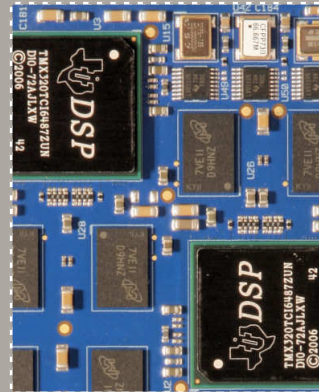
DSP Board Support Library: for DSP setup and interfaces

MMC: full management suite based on PigeonPoint BMR software

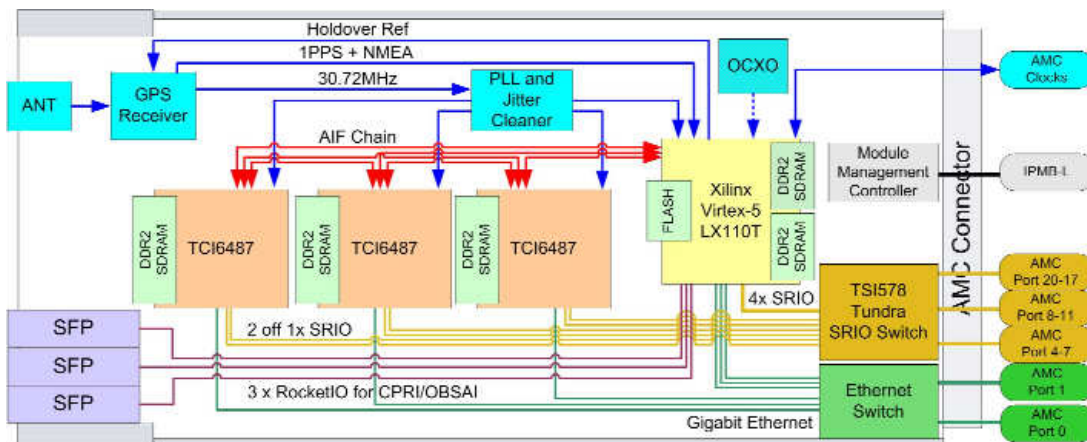
WIRELESS SOFTWARE

Tata Elxsi offers a complete WiMAX software stack ported to this AMC card

Texas Instruments offers DSP software function libraries for WiMAX and LTE



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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.

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