



# V Rose Microsystems, Inc.

[www.vrosemicrosystems.com](http://www.vrosemicrosystems.com)

**VRM-AMC-D4F1**

## Product Data Sheet

### Overview:

The VRM-AMC-D4F1 is a single width, full-height Advanced Mezzanine Card offering unprecedented signal processing performance and bandwidth in a highly compact package, for wireless telecom, medical imaging, and other high performance applications. The various FPGA and DSP options allow an application to be balanced and optimized for most effective use of resources and development time.

A full 10 Gbps SRIO infrastructure based on the PICMG AMC.4 standard provides the deterministic bandwidth needed for radio or other raw data transfers on and off card. Separate AMC.2 Gigabit Ethernet is provided for control, management and delivery of base-band or other processed data streams.

Additional high speed user-configurable I/O is provided to the backplane or (optionally) front panel via multiple high-speed serial ports from the FPGA. Should modifications be required to make this product fit your OEM requirements, V Rose Microsystems is fully setup to support your needs through customization of the hardware architecture or providing additional software and firmware.



### Features:

- 4 Texas Instruments TMS320C6455 DSPs
- Xilinx Virtex-4 FX series FPGA, customer programmable
- Over 1GB total card memory
- 10 Gbps 4x Serial RapidIO infrastructure
- Full Gigabit Ethernet infrastructure
- Serial RapidIO and programmable front panel I/O
- Single width, full height PICMG AMC.0 R2.0 Advanced Mezzanine Card
- Software and firmware library support
- Developed for use in OEM products
- Fully supported with customization options and OEM lifecycle services
- Fastest available DSP resource
- additional I/O, pre-processing or signal processing resource
- extensive data storage
- dependable high-bandwidth interconnect
- industry standard interconnect
- fast and flexible links to external data
- works with Industry standard MicroTCA and AdvancedTCA systems
- fast route to application code porting
- reduces integration risk and speeds time to market
- allows a detailed fit to specific OEM require-



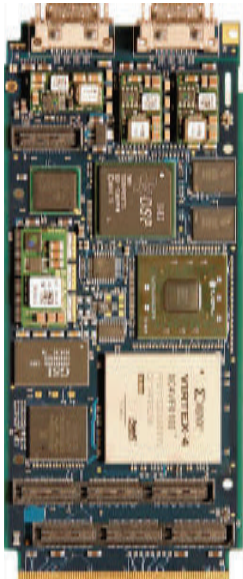
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### Features:



- DSPs (4 x 1.2GHz TMS320C6455 DSPs):
  - 128 or 256MB DDR2-500 SDRAM each
- Direct 125 MHz EMIF connections to FPGA: 64bit on DSP0, 32bit on DSP1-3
  - Connection to XDS510TM emulator
- SRIO, Ethernet, HPI, McBSP & MMC connections
- FPGA (Xilinx Virtex-4 FX100 FPGA):
  - Dedicated DSP EMIF slave interfaces
    - 18Mbytes x36 250MHz SRAM
    - 10Gbps 4x SRIO
  - 2 Full-duplex Gigabit Ethernet ports
    - 10Gbps Front Panel RocketIOTM
- RocketIOTM connections to AMC ports 12-13 and 17-20
  - Xilinx parallel cable connection
  - Optional Chipscope header
- Serial RapidIO (10Gbps 4x infrastructure using Tundra TSI578):
  - AMC.4 compliant connections to AMC ports 4-7 and 8-11
  - Dedicated 10Gbps 4x links to all DSPs
  - Dedicated 10Gbps 4x link to FPGA
  - Front Panel 10Gbps 4x Connector
- Ethernet (Gigabit Ethernet infrastructure using Broadcom BCM5389):
  - AMC.2 (1000BASE-BX) compliant connections to AMC Ports 0 & 1
    - Full-duplex 1Gbps links
    - 9300 byte Jumbo Packet support
  - FPGA & AMC Fabric port pairs capable of bandwidth aggregation
- IPMI (Atmega128 IPMI controller)
  - AMC.0 IPMB\_L interface
  - FRU EEPROM data
  - Power and reset control
  - Real-time health monitoring
- Form Factor: Advanced Mezzanine Card
  - AMC.0 Rev 2.0 compliant
  - Full-height, single-width
- Usable in both AdvancedTCATM and
  - MicroTCATM systems.
  - AMC.2 Gigabit Ethernet
  - AMC.4 4x Serial RapidIO
  - Hot swap support

**μTCA™**

**AdvancedTCA®**



**AdvancedMC™**



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### Configuration and Debug:

- DSP boot: EEPROM, Ethernet or SRIO
- FPGA loaded from DSP0 via SelectMap
- On-board debug LEDs for DSPs, FPGA, power and Ethernet ports
- Debug connector and breakout board for XDS-510, Xilinx platform cable, DSP and MMC serial ports

### Environment/EMC/Safety:

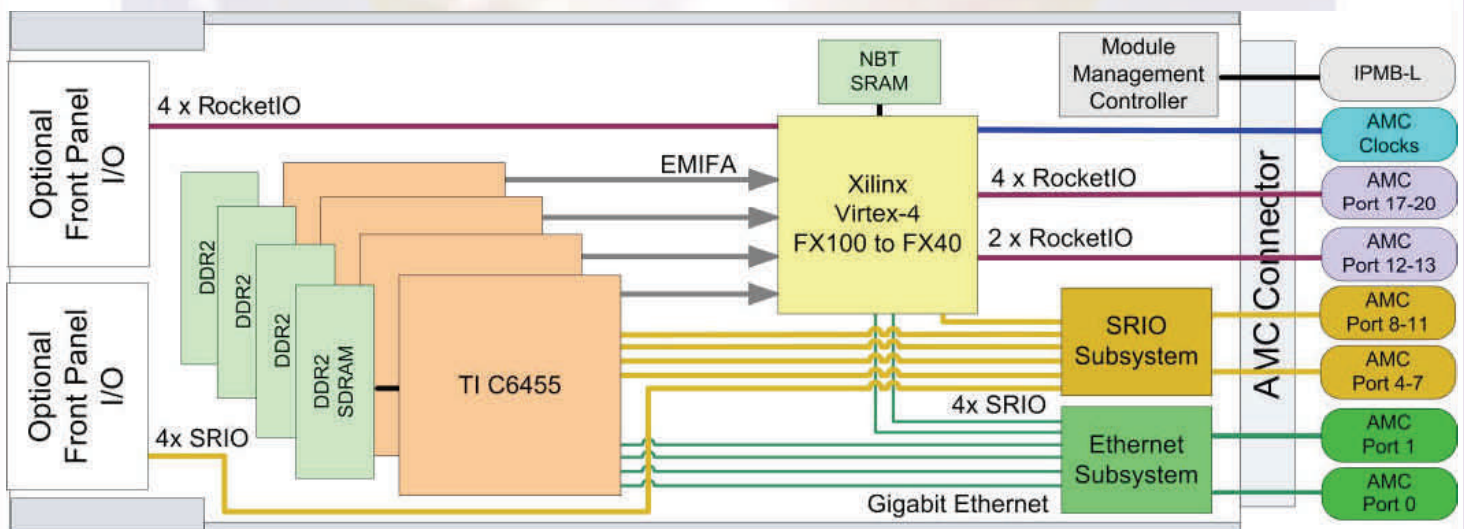
- Power consumption: up to 45W, dependent on software and FPGA load
- Designed for NEBS and ETSI compliance when used in appropriate chassis
- 2004/108/EC and FCC EMC compliant
- 2002/95/EC RoHS compliant
- 2002/96/EC WEEE compliant
- 2006/95/EC Low Voltage Directive compliant

### Software Specifications:

*DSP library:* support for controlling board functions, interfaces and self test. TCP/IP stack also available for DSPs

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

*MMC:* full management suite based on PigeonPoint BMR software



### Ordering Options:

**VRM-AMC-D4F1:** single width, full-height Advanced Mezzanine Card