



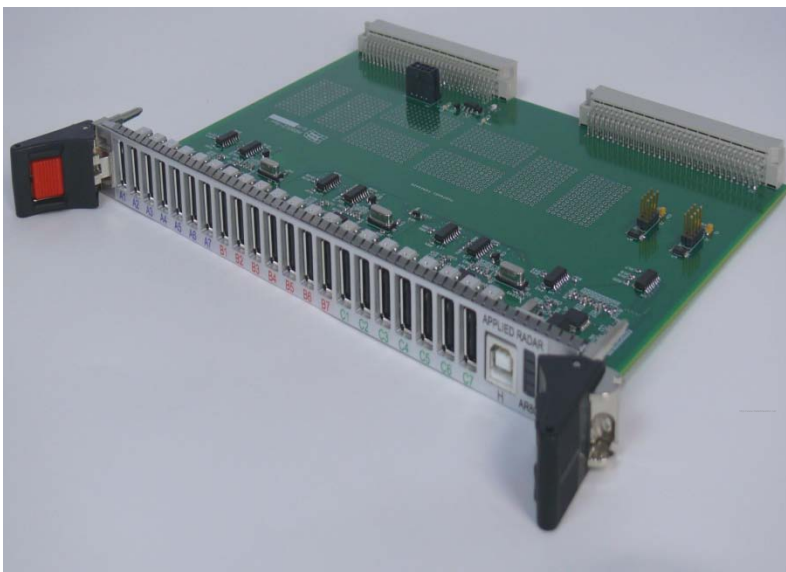
Typical Applications

- Test equipment
- Hardware Control
- Networking
- Equipment Integration

Features

- 21 Front Panel USB A Ports
- 4 Additional USB Ports on PCB
- VME 6U Size B
- Self Powered USB Hub
- USB 2.0 Compatible
- Built-in Over Current Protection
- Windows & Linux

General Description



The AR8012 is a low cost VME 6U Size B USB hub board. The AR8012 offers 21 + 4 full power (500mA) ports. Individual port management is employed to ensure that each device is powered off should an over current condition be sensed. On board and front panel LEDs indicate vital information such as regulated power and hub status.

The VME USB hub board only uses power and ground pins on the VME backplane connectors. Power can alternatively be delivered through the Molex connector located on the board for testing outside the VME chassis. (Further information shown below)

Front Panel



Electrical Specifications

Parameter	Min.	Typ.	Max.	Units
Operating Voltage		5		Vdc
Output Current per port		500		mA
Available USB Ports			21+4	Ports

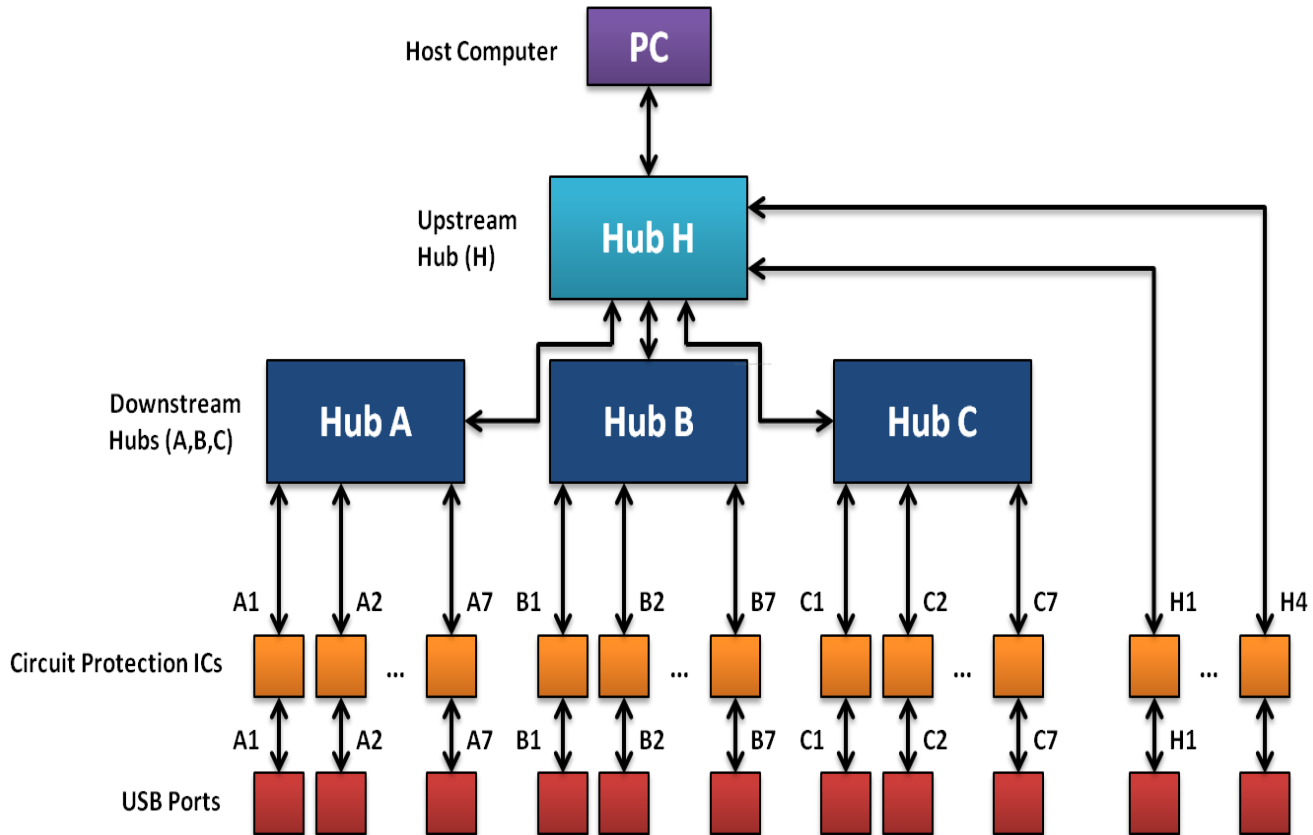
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315 Commerce Park Road, North Kingstown, RI 02852 Phone: 401-295-0062 Fax: 401 667-2912



Interface Connectors

Parameter	Connector Type	Location
Host	USB B	Front Panel
USB Hub Ports(21)	USB A	Front Panel
USB Hub Ports(4)	100 Mil Headers	Top, Central Section
VME Connectors	VME	Back Panel
Alternative Power	Molex Micro-fit	Top, Northwest Section

Block Diagram



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Individual Port Power Management

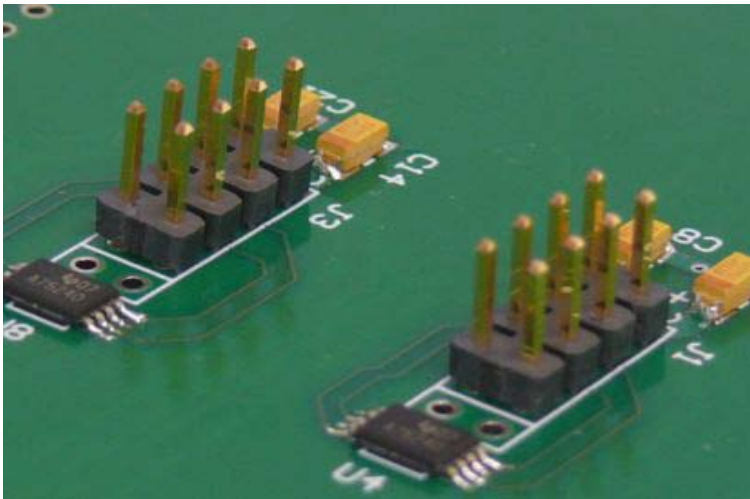
A key feature in the AR8012 is the individual over current protection provided to each port. This makes the AR8012 more robust than many hubs which utilize the ganged port management scheme. In ganged port management, a device that causes an over current condition will shut down several channels simultaneously because multiple downstream ports are tied to a single protection circuit. In individual port power management, each port has its own over current protection. If one channel experiences an over current fault, then that channel will be powered down, thus protecting the device while allowing the operation of every other channel.

LED Functions

There are six LEDs located on this board with important status information for the user. The LED on the front panel consists of four separate LEDs. As labeled on the front panel, the LEDs represent the status of hubs A, B, C and the host hub (H). For example, if the AR8012 is plugged in and has been enumerated, the four LEDs will display green indicating that the hubs are configured and the board is awaiting an input device. If the host PC is disconnected, then the four front panel LEDs will display all red indicating that the host has been disconnected.

In addition to the four front panel LEDs, located in the top left hand corner of the board are two more LEDs. When the LEDs are green, it indicates that the AR8012 is properly receiving the 5 volts from the VME chassis or the Molex connector and the 3.3 volts is being regulated successfully. If the LEDs are off, it could indicate a blown fuse, or an input voltage problem.

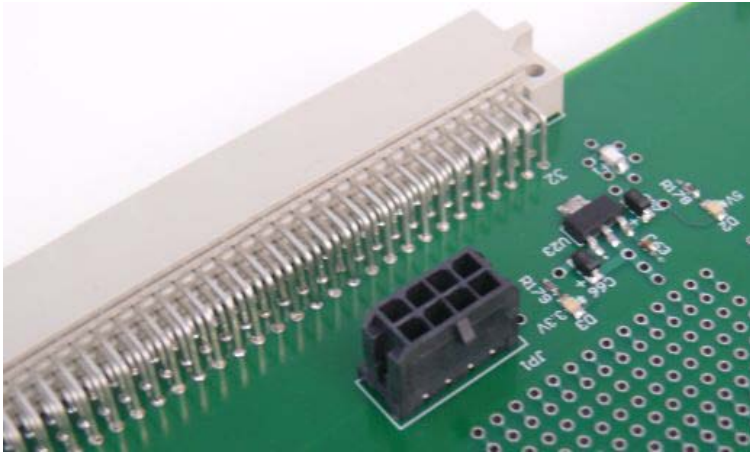
On Board 4 USB Connections



The AR8012 offers an additional 4 USB connections for a total of 25 located near the center of the board. Similar to the front panel ports, these 4 connections offer the same individual power protection. The spacing between pins is 100 mils, and the material is gold plated. Standard USB mother board pin out is used, so that commercially available cables can be used to access these ports.

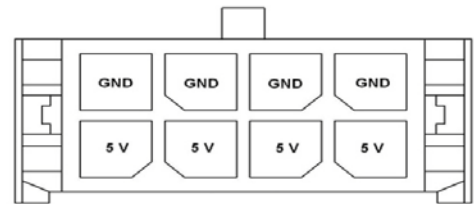


External Power Option



For operation outside of the VME chassis, the AR8012 offers a method for powering the board without the VME backplane. All 8 pins of the connector should be used to provide adequate current to the board for full power operation.

Header Pin Out



Parameter	Product Number
Header	Molex 43045-0813
Receptacle	Molex 43025-0800

Programming Interface

No additional software or programming is needed to use this device. The AR8012 has been tested and verified operational on Windows XP, Windows Vista, Windows 7, Linux kernel versions 2.6.24 (32-bit Debian) and 2.6.35 (64-bit Fedora).

Absolute Maximums

Input Voltage	5.5 Vdc
Operating Temperature	0 to +70 °C
Storage Temperature	-40 to +125 °C



ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Ordering Information

Order Applied Radar part number:

AR8012