

FEATURES

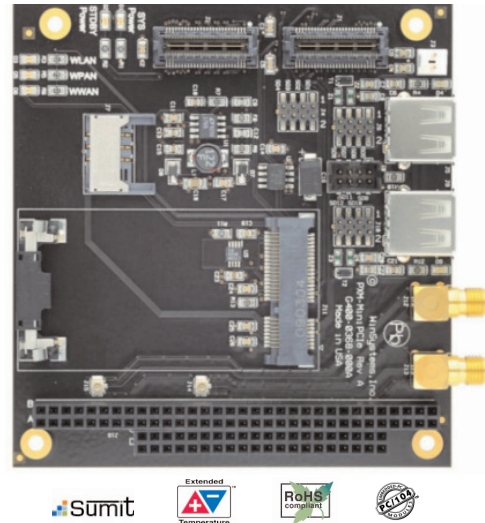
- SUMIT-ISM module with MiniPCIe and USB support
- MiniPCIe Connector includes:
 - Supports both Full and Half size PCIe MiniCards
 - x1 PCIe and two USB 2.0 connectors available through the SUMIT AB interface
 - Two RF connectors for multiple antenna support
 - SIM card socket
 - Onboard power supplies generate +1.5V and +3.3Vaux from a single +5V supply
 - W_DISABLE# supported
 - Automatic lane shifting of PCIe signals
- Two pass-through USB 2.0 ports feature:
 - Connector options of either a shielded Type A connectors or two 8-pin jumper headers
 - Each port with overcurrent and inrush protection
 - Automatic lane shifting of USB signals
 - LED on each port for visual status
- 90mm x 96mm Industry Standard Module (ISM) with SUMIT AB and PC/104 connectors
- Board can be depopulated for OEM configurations
- PC/104 pass through connector for legacy stack
- Operational temperature: -40° to +85° C
- RoHS compliant

WinSystems' PXM-MiniPCIe is a SUMIT-ISM module that supports both a MiniPCIe card and two USB ports. It provides the ability to add functions such as 802.11 a/g wireless, WLAN, and other high-performance mobile computing functions to embedded applications. Its two pass-through USB 2.0 ports supports tethered devices as well.

FUNCTIONAL CAPABILITY

MiniPCIe Cards - The PXM-MiniPCIe supports both standard and half-size MiniCards. The MiniCard is a small form factor board used to implement the PCI Express interface on notebook computers for additional I/O functions. The standard card size is 30mm wide by 50.95mm long by 5mm high. A half-length card measures 30mm by 26.8mm. Either size MiniCard plugs into a 52-pin card edge connector.

The PCI Express MiniCard socket supports two primary system bus interfaces: PCI Express x1 and USB 2.0. Also the PCIe MiniCard connector provides connections to the SMBus, diagnostic LEDs for wireless network status, SIM card for GSM and WCDMA applications, and both a +1.5 and +3.3 volt power for the card.



These cards are serviceable since they can be easily added and removed. They are multi-sourced by a number of vendors worldwide. MiniCards are flexible since different applications can be supported in the same socket. For example, cards are currently available for wireless LAN, WPAN and WWAN, cellular data, Bluetooth and other functions. This allows a system to be easily upgraded when new technologies become available.

RF Connectors - To make system integration easier for wireless applications, two right angle RF connectors are on the PXM-MiniPCIe board's edge. This enables a convenient connection to the MiniPCIe card from regular coax cable from an external antenna.

Status Indicators - The LED_WPAN#, LED_WLAN#, and LED_WWAN# output signals from MiniCards are connected to three individual LEDs to provide visual status of the installed wireless card's function.

User Identity Module (UIM) Connector - The UIM signals provide the interface between a removable User Identity Module (UIM), an extension of a Subscriber Identity Module (SIM), and a wireless wide area network (WWAN) radio device residing on the MiniCard. A UIM contains parameters necessary for the WWAN device's operation in a wireless wide area radio environment.

The W_DISABLE# signal is supported to disable radio operation. This signal is wired to a connector on the edge of the PXM-MiniPCIe module.

USB Interface - There is not a USB-controller on the PXM-MiniPCIe module. It is located on the single board computer. This module routes two of the USB ports from the SUMIT A connector to two sets of onboard connectors. One connector pair is a USB 2.0 Type A while the others are 8-pin headers. They are jumper selectable per channel. Also, one of the USB ports is wired to the MiniPCIe connector since some cards require this interface.

SUMIT Resources		
Form Factor: SUMIT-ISM		
	SUMIT A	SUMIT B
PCIe x1	1	-
PCIe x4		-
USB	2	
ExpressCard	-	
LPC	-	
SPI / uWire	-	
SMBus/ I ² C	Opt.	
+12V	-	
+5V	✓	✓
+5Vsb	✓	✓
+3.3V	-	-

Port Protection - Each USB port can supply up to 500mA and has overcurrent and in-rush protection provided by a LM3526 power switch. This device is a dual-stage design including a thermal protection circuit. During a short-circuit/over-current event, the switch dissipating excessive heat is turned off, allowing the second switch to continue to function uninterrupted. Therefore, a fault on one channel will not affect the other. No fuses are required since protection is done electronically.

The PXM-MiniPCIe USB ports supports hot insertion and removal. The fault flag output's 1 mS delay feature prevents erroneous overcurrent reporting caused by inrush currents during hot-plug events.

Monitor LEDs - Two light emitting diodes (LEDs) on the PXM-MiniPCIe provide a visual indication of the status of each USB port. When a red LED is ON, it indicates that the individual USB connector is powered. When the LED is OFF, it indicates a power-fault condition.

Power - The +5V power and ground is supplied from the SUMIT A and B, and PC/104 connectors. There is a +5Vsb to 3.3Vaux regulator and a +5V to 1.5V regulator onboard to supply power to MiniPCIe cards. The 3Vaux voltage source will be available during the systems' Standby/Suspend state to support WAKE event processing.

PC/104 Interface - An onboard PC/104 connector supports legacy applications; however, no control or data signals are wired to it. It simply feeds the signals through the connector to the next module in a stack.

Custom Configurations - The PXM-MiniPCIe has many options to provide the greatest flexibility for the user. For OEM applications, WinSystems can depopulate certain board features that will reduce its cost. Contact a factory applications engineer with your technical requirements.

Software - Normally PCIe MiniCards are automatically recognized by operating systems such as Windows XP. Also, the individual MiniPCIe Card manufacturer will have drivers either with their card or on their web site. Contact them for specific operating systems that they support.

SPECIFICATIONS

Power Requirements

Vcc = +5V ±5% @ TBD mA typical (does not include USB device power requirements)
 Vsb = +5V ±5% @ TBD mA (depends on the PCIe MiniCard installed in the socket)

Mechanical

Dimensions: 3.6" x 3.8" (90mm x 96mm)
 Weight: 2.6 oz. (73.7 gm)

Connectors

SUMIT™: Type AB connector (two, 52-pin)
 USB: Two, USB 2.0 Type A and two 8-pin, 2mm headers
 MiniPCIe: 52-pin
 PC/104: 104-pin stackthrough (feed through only)

Environmental

Operating Temperature: -40° to +85° Celsius
 Non-condensing relative humidity: 5% to 95%

ORDERING INFORMATION

PXM-MiniPCIe SUMIT-ISM module with MiniPCIe and USB support

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