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PIC32™ Industrial Host StackableUSB™ Microcontroller USB1032

Features

- ✓ 80MHz system clock
- ✓ 1.56 DMIPS/MHz performance
- ✓ 512KB Flash, 32KB SRAM memory
- ✓ Single-cycle multiply and high-performance divide unit
- ✓ On-board RS232 transceiver
- ✓ Easy development with Microchip's MPLAB IDE
- ✓ Small 1.85" x 1.74" board
- ✓ -40° to +85°C operation

The USB1032 is the ideal module for applications requiring more performance than typical micro-controllers have offered but not needing the full blast offered by an SBC. Well-suited for applications confined to small, tight spaces, the 125 DMIPS performance requires only 100mA power, considerably less than an SBC.

The USB1032 is powered by the PIC32 micro-controller whose USB 2.0 On-The-Go (OTG) functionality allows the microcontroller to be used as a Host. Operating as a Host device, design engineers can easily and cost-effectively stack StackableUSB client I/O devices onto the controller making a small, embedded controller ideally suited to harsh environments.

Available onboard is a host of control features including 10-bit ADC, RS232, four (4) programmable LEDs, and digital I/O. Developers will appreciate the PIC32's easy-to-use and solidly-supported software tools as they program and debug.

The 1.85" x 1.74" module is USB 2.0 compliant providing users the advantages of plug-and-play interfacing. The module stacks onto the top or bottom of any StackableUSB client single board computer or microcontroller forming a small, rugged, embeddable system, ideal for harsh environments. The USB1032 can be connected to desktop PCs and laptops via ICSP for development.
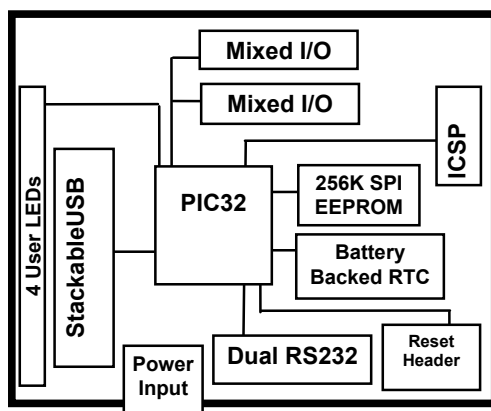
Software/Driver Support	Compatible Hardware	Mounting/Packaging
Windows XP, Vista *MPLAB IDE* *MPLAB C32 C Compiler* *USB Host stack* *Graphics & audio library* *16- and 32-bit File System* *TCP/IP Stack* *Sample software*	*StackableUSB Client devices* *ICE* *ICD3*	*¼-Size 104™ Form Factor* *Standoffs, STDOFFUSB*

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Specifications:

Mechanical:
- ❑ 1.85" x 1.74" StackableUSB
- ❑ ¼-Size 104™ Form Factor

Power Requirements:
- ❑ +5v ±5% at 100mA typical

Environmental:
- ❑ -40 to +85°C operating
- ❑ -40° to +85°C storage
- ❑ 5%-95% relative humidity, non-condensing

Processor:
- ❑ MIPS32® M4K™ 32-bit core
- ❑ 80MHz, 1.56DMIPS/MHz
- ❑ 5-stage pipeline, 32-bit ALU
- ❑ Single-cycle multiply and high-performance divide unit
- ❑ User and kernel modes to enable robust embedded system
- ❑ Prefetch cache module to speed execution from flash
- ❑ 512KB Flash, 32KB SRAM

Serial Ports:
- ❑ Two (2) RS232 available from 20-pin header

LEDs/Switches:
- ❑ Four (4) programmable user LEDs
- ❑ One (1) reset header

Peripheral Features:
- ❑ 4-channel hardware DMA controller with automatic data size detection
- ❑ USB 2.0 compliant full speed controller
- ❑ USB has a dedicated DMA channel
- ❑ Two (2) I2C modules
- ❑ Two (2) UART modules with:
  - • RS232, RS485 and LIN 1.2 support
  - • IrDA® with on-chip hardware encoder and decoder
- ❑ Parallel master and slave port
- ❑ Hardware real-time clock/calendar
- ❑ Five (5) 16-bit timers/counters (two 16-bit pairs combine to create two 32-bit timers)
- ❑ Five (5) capture inputs
- ❑ Five (5) vompare/PWM outputs
- ❑ Five (5) external interrupt pins
- ❑ High-speed I/O pins capable of toggling at up to 80MHz
- ❑ High-current sink/source (18 mA/18 mA) on all I/O pins
- ❑ Configurable open-drain output on digital I/O pins

Analog Features:
- ❑ 16-channel 10-bit analog-to-digital converter
- ❑ 500 KSPS conversion rate
- ❑ Conversion available during sleep, idle
- ❑ Two (2) analog comparators
- ❑ 5.5V tolerant input pins (digital pins only)

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Debug Features:
❑ 2-wire ICSP interface with unobtrusive access and real-time data exchange with application

External Connections:
❑ 2-pin power terminal
❑ StackableUSB
❑ 20-pin header for COM1 and COM2
❑ 6-pin ICSP debug port
❑ 2x40-pin headers for I/O and peripherals

Internal Electrical Interface:
❑ StackableUSB
❑ USB 1.1 & 2.0 compatible, full-speed

Development Kit:
❑ Module
❑ Complete cable set
❑ Documentation, sample software

Ordering Information:

OEM Single Board Computers:
USB1032	PIC32 Industrial Host Microcontroller
CS1032	Complete cable set
1032OPT1	Battery Backed RTC
1032OPT2	256K SPI EEPROM

Related Products:
STDOFFUSB	StackableUSB standoff kit
BA4040	40-pin mixed I/O header breakout cable
BA2018	20-pin RS232 header to dual DB9 breakout cable
CA4142	ICSP programming/ debugging cable

Development Board Kits*
DK1032	PIC32 Industrial Host Microcontroller; Windows-ready development kit

See Development Kit Specifications