



# Enterprises, Inc.

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## Micro Pod (Extended Temperature)



- Windows CE 6.0 OS Pre-Installed
- Platform Builder Not Required
- Sunlight Readable
- Visual Studio Ready
- Application Ready
- Over 40 Demos Provided
- Fully Integrated And Complete

## Embedded Touch Screen Computer

The **New Micro Pod** 32-Bit Embedded Single Board Computers feature a complete Windows CE 6.0 operating system pre-installed and can easily run your applications written in Microsoft Visual Basic, Visual C#, or Visual C++. Key hardware features include an Intel XScale RISC Processor, DRAM and FLASH Memory, Solid State Disk, Real Time Clock, Serial Ports (2), LCD Sunlight Readable Color Graphics Display, Touch Screen, Micro SD Card Slot, USB Host Port (1), USB Client Port (1), Analog Inputs (8), Digital I/O (16), Audio Out, CAN Bus, Ethernet, and much more. Remote debug, drag and drop, and software development via USB is fully supported.

### Hardware Features

- Intel XScale PXA270 RISC Processor
- 520 MHz Clock Speed
- 1 Giga-Byte FLASH Memory
- 64 Mega-Bytes On-Board DRAM
- 3.5 in. Sunlight Readable, Color LCD Display
- Touch Screen (Resistive)
- Micro SD Card Interface
- RS-232 Serial COM Port (1)
- RS-422/485 Serial COM Port (1)
- USB Host Port (1)
- USB Client Port (1)
- Real Time Clock (Battery Backed)
- CAN Bus (Controll Area Network)
- Ethernet On-Board 10/100
- Audio Output (Stereo)
- Analog Inputs (8 12-Bit Channels)
- Digital Inputs/Interrupts (8)
- Digital Outputs (8)

### Software Features

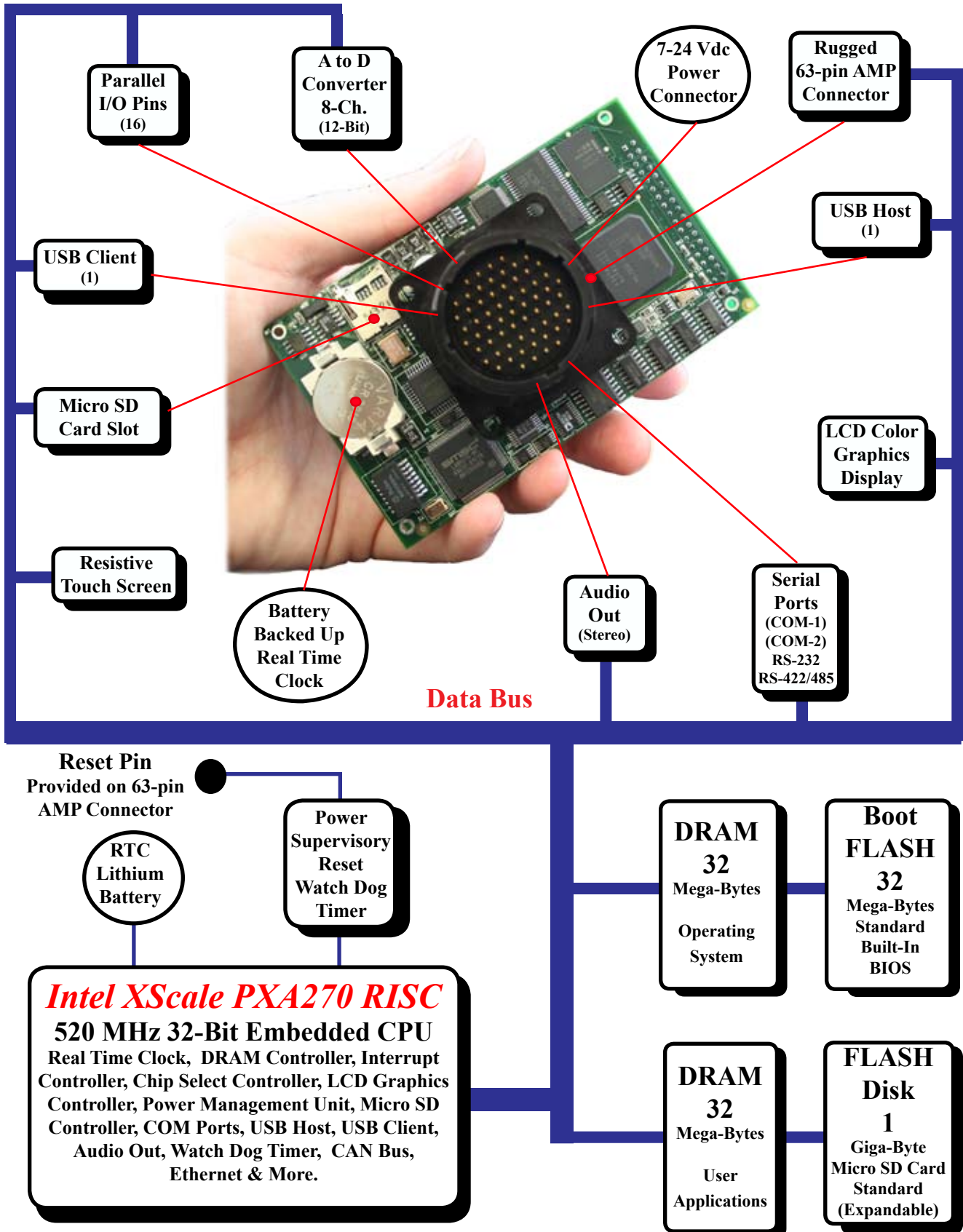
- Windows CE 6.0 Pre-Loaded
- Microsoft Compact Framework 3.5
- Visual Studio 2005/2008 Supported
- Visual Basic Supported
- Visual C# Supported
- Visual C++ Supported
- Remote Debug Supported
- Remote Display Supported
- Demo Programs With Source Code

*The Future of Embedded Controllers™*

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# Micro Pod

## On-Board I/O and Functionality Block Diagram



# Micro Pod Description

## Intel XScale RISC CPU

The **Micro Pod** features the Intel XScale PXA270 RISC processor chip. The chip provides a 520 Mhz, low-power CPU and a complete set of Windows CE compatible peripherals suitable for embedded applications. Fully integrated compatible peripherals include an LCD graphics controller, DRAM controller, Micro SD Controller, Real Time Clock, Watch-Dog-Timer, Two (2) serial ports, One (1) USB host port, One (1) USB client port, Audio Output, CAN Bus, Ethernet, and more. The Intel XScale RISC CPU is targeted for low power embedded applications that require high performance. The Micro Pod is fully supported by the Microsoft Visual Studio 2005/2008 and the Microsoft Embedded Visual Tools for application development using Visual Basic, C#, and Visual C++.

## Standard I/O Interfaces

The **Micro Pod** provides (1) RS-232 Serial Port, (1) RS-422/485 Software Selectable Serial Port, (1) USB Host Port, (1) USB Client Port, Audio Out (Stereo), (8) Channels of 12-Bit A to D conversion, (16) Parallel I/O lines, CAN Bus, Ethernet, and more. These standard I/O interfaces and features are made available on a 63-pin AMP connector on the back side of the main CPU board. A wiring harness is also available. Software drivers and demonstration programs with source code are provided for each of these I/O functions.

## COM / Serial Ports

The **Micro Pod** provides two (2) standard serial ports, one (1) RS-232 and one (1) RS-422/485 software selectable (COM-1, COM-2). Each serial port provides receivers and drivers for Tx, Rx, RTS, and CTS signals. Drivers for the COM ports are provided in the RLC Windows CE operating system that comes pre-installed on the Micro Pod.

## On-Board FLASH/DRAM Memory

The **Micro Pod** provides 64 MB of high speed DRAM, 32MB available for the user, 32 MB of on-board BOOT FLASH memory, and 1 GB of FLASH Memory via Micro SD Card which is user expandable. Additional FLASH memory may also be added using ATA FLASH cards via the USB or Micro SD Card interface. All necessary drivers are built into the operating system. A BIOS with built-in loader and flash programmer is contained in a protected region of the on-board BOOTFLASH memory. The Windows CE file system is compatible to a standard Windows desktop platform, therefore, program transfers into FLASH DISK memory space using standard drag and drop and your desktop Windows Explorer are fully supported.

## Color Display & Touch Screen

The **Micro Pod** features a built-in color LCD graphics display controller and a resistive touch screen controller. This driver is used to drive the attached 3.5 in. sunlight readable, extended temperature TFT display. The display features 320x240 graphics, 64,000 colors and a software controllable LED backlight system.

## Micro SD Card Slot

One (1) Micro SD card slot is provided. The Micro Pod is shipped standard with a 1 GB Micro SD Card. The Micro SD card stores the registry, start program, text fonts, and any drivers necessary for your application.

## AMP Connector

The **Micro Pod** provides a 63-pin AMP connector which gives access to all of the on-board I/O including the analog and digital channels, USB Host, USB Client, CAN Bus, Ethernet, and power. A custom wiring harness is available from RLC.

## Fully Enclosed Case



# I/O And User Interfaces Specifications

## Serial Ports:

Two (2) serial ports COM-1 and COM-2, provide DTE style (Rx, Tx, RTC, CTS) signals. One (1) RS-232 port and one (1) RS-422/485 software selectable port. DB-9F locking connectors are provided on the wiring harness. A null-modem is required to connect directly to a PC.

## Parallel / Digital I/O Ports:

Sixteen (16) bits of parallel I/O are provided. They are configured as eight (8) digital inputs (0-18 Vdc max) and eight (8) digital outputs (sink up to 40 mA per bit). The digital inputs can be configured to be used as interrupt inputs. The lines are TTL compatible.

## Ethernet:

One (1) 10/100 compatible Ethernet port is supplied.  
Maximum Receive Rate: 1929 k Bytes/sec  
Maximum Send Rate: 750 k Bytes/sec

## Micro SD Card Interface:

One (1) Micro SD card slot is supplied to support FLASH memory cards. A 1 Giga-byte Micro SD Card is provided with the Micro Pod (user expandable).

## Analog Inputs:

Six (6) channels of single ended 12-bit analog to digital converters. Input voltage range +/- 5 Vdc or +/- 10 Vdc +/-1% accuracy. Two (2) channels of 12-bit differential analog to digital converters. Input voltage range 0 to 4 Vdc +/-1% accuracy.

## CAN Bus:

One (1) CAN Bus (2.0 B) with a maximum of 1 MBit/sec provided.

## USB Ports (2):

One (1) USB host and one (1) USB client ports are provided, version 1.1. The pre-installed operating system includes drivers for Active Synch, Remote Display, keyboard, mouse, and USB FLASH sticks.

## Audio Out & Media Player:

Audio output is provided for playing stereo type audio signals, .WAV and MP3 files can be played. A media player is provided and supports AVI and MPG files. The audio out provides 400 mW of power that will drive small speakers direct.

## General Specifications

### Power Requirements:

Single unregulated 7-24 Vdc power source.  
240 mA @ 12 Vdc (2880 mW)  
60 mA @ 12 Vdc Suspend mode (720 mW)

### On-Board Memory:

64MB of DRAM, 32MB available for user. 32MB of BOOT FLASH, 1GB of FLASH Memory via Micro SD Card (expandable).

### Environmental Testing:

Operating temperature: -20° to +60° C  
Extended Temperature Option: -40° to +75° C  
Storage Temperature: -30° to +70° C

### CPU Clock Speed:

32-Bit XScale PXA270 RISC processor running at 520 Mhz

### Boot Time:

Unit will boot in 6-8 seconds.

## Case and Bezel Option

Fully enclosed cases and bezels made from billet aluminum and hard anodized red or black are also available.

## Extended Temperature Option

The Micro-Pod is also available in an extended temperature version, the Micro-Pod-ET. It has all of the same functionality as the regular Micro-Pod computer boards, just modified with special extended temperature parts to meet the extreme temperature specifications. Each unit is tested in an environmental chamber to make sure that the unit will boot and run at temperatures between -40 to +75 C. Each unit comes with a certificate that guarantees it has met the temperature specifications.

## Display And Touch Screen Option

### LCD Sunlight Readable, Extended Temperature Display:

The Micro Pod comes with a 3.5 in. sunlight readable, transreflective, extended temperature color TFT (320x240, 64,000 Colors, 130 nit) QVGA LCD Display. With no extra configurations or integration, the display mounts directly to the Micro Pod. The display includes integrated power supply, LED backlight and an integrated resistive touch screen.

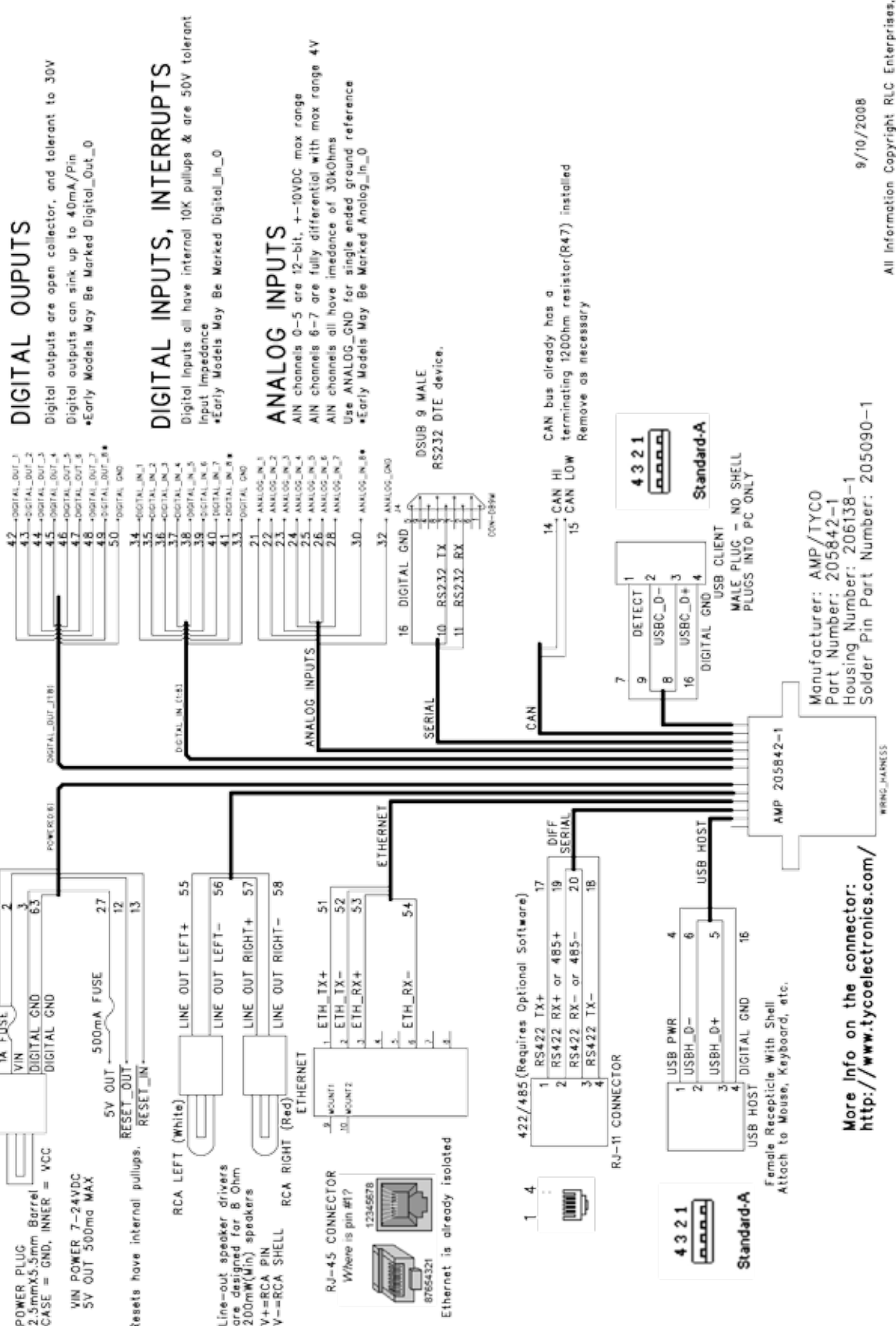
## Operating System

The Micro Pod comes with a pre-installed Windows CE 6.0 operating system which allows for fast and easy application development. The operating system is stored in a permanent section of FLASH that you or your customer can not alter or erase. You can either boot to the familiar Windows desktop or directly to your application. The operating system includes such features as internet browser, media player, file server, and web server. Many device drivers are built-in including USB FLASH storage, keyboard and mouse support, and more. Please visit our website, [www.rlc.com](http://www.rlc.com), for more details.



# Micro Pod Wiring Harness

## EMBEDDED MICRO POD WIRING HARNESS



More info on the connector:  
<http://www.tycoelectronics.com/>

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