

# ETX IEM Series

*ETX, Embedded Technology Extended, is a new architecture for industrial applications. It fulfills all the requirements for embedded technology by a compact module of most PC functions:*

ETX divides a complete motherboard system into two parts physically:

- ETX MODULE - as small as 4.5 x 4 size, carries CPU system and core ASICs
- BASEBOARD including all I/O connectors, plus some supplementary functions.

1  
Single  
Board  
Computer

2  
VIDEO  
CARD

3  
Xscale  
Solutions

4  
Open  
HMI

5  
VITO  
Universal  
Controller

6  
DINO  
BLADE

7  
LCD  
Product  
Series

8  
Embedded  
System

9  
Industrial  
Computer  
Chassis

10  
Power  
Supply

11  
Peripherals

## IEM Advantages

ETX is an industry standard System-On-Module (SOM) technology. By choosing integrated CPU and memory module and customized baseboard with I/O functionality, embedded product solutions could be incredibly efficiently and economically.

### Benefits

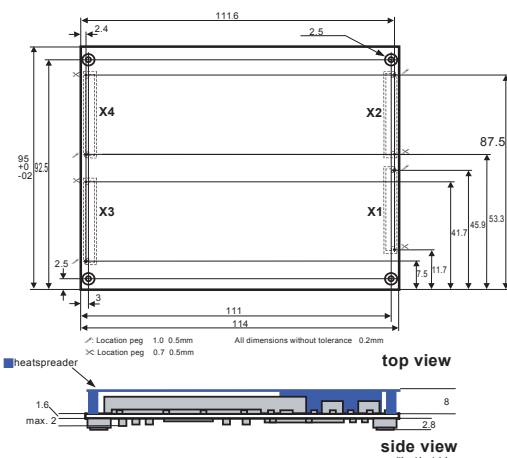
- Time Advantage !
- Complete PC functionality with x86 architecture
- Cost saving in engineering and developing
- Time to market in software designing and scheduling
- Design Advantage !
- Customize designing in reliable connectors
- Easy upgrading with no redesign needed in the event of component end of life
- Extremely slim low power fanless design
- Installation/Size Advantage !
- Gas-proof connectors and mounting holes enable rugged applications.

## Fitting Solution for Embedded Application

It occurs a lot that a CPU board doesn't meet industrial PC- based applications, due to unsuitable board size, improper connectors location or missing functions. The only alternative solution was to develop a completely new design, which is expensive and very time-consuming. Now, IEI presents to you FSEA (Fitting Solution for Embedded Application) which is based on the open standard of ETX

technology and designed by JUMPtec. It occurs a lot that a CPU board doesn't meet industrial PC- based applications, due to unsuitable board size, improper connectors location or missing functions. The only alternative solution was to develop a completely new design, which is expensive and very time-consuming. Now, IEI presents to you FSEA (Fitting Solution for Embedded Application) which is based on the open standard of ETX technology and designed by JUMPtec.

## Dimensions



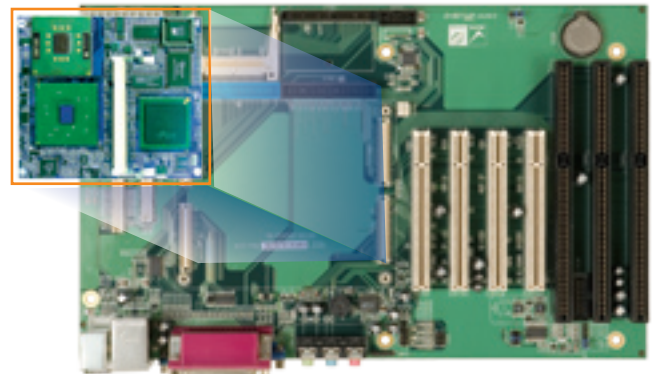
## Basic Concept of IEI FSEA

ETX modules are scaleable and interchangeable. Thus with a single baseboard, several products can be launched in the same time by the aid of a wide choice of CPU modules.

**M (ETX CPU Module) + N (ETX Baseboard) → M x N Products**

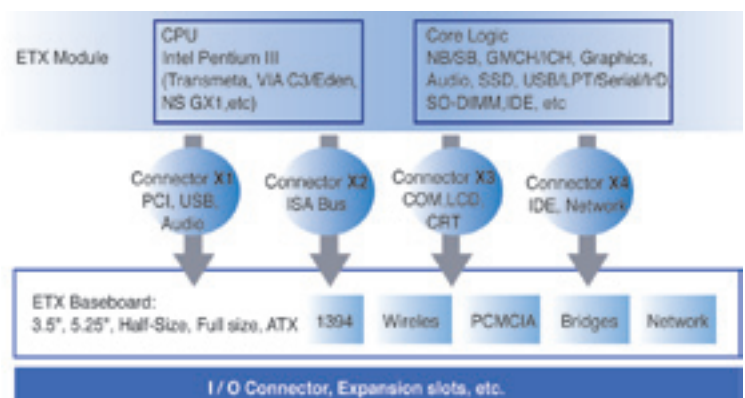
In order to enhance the reliability and flexibility of ETX solutions, IEI moves the Ethernet interface from the CPU module to the baseboard. Testing performance reveals that IEI's innovative design produces outstanding results.

## ETX CPU MODULE

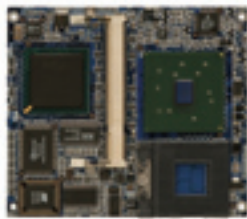


ETX Baseboard

## ETX Module Architecture



## IEM-PM

Pentium® M Highly  
Integrated ETX ModuleETX CPU Module with Intel® Pentium® M /  
Celeron® M CPU, USB 2.0, LAN & Audio

## Solder Side

Heatsink/CPU cooler for various  
applications

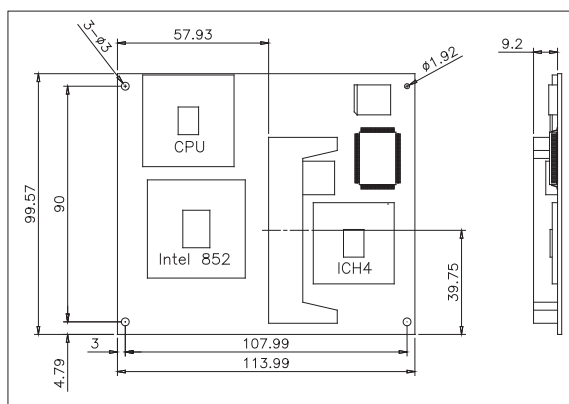
FSB 400

DDR266

## Specifications

- ◆ **CPU**  
Intel® Celeron® M 600MHz (IEM-PM-600E)
- ◆ **System Chipset**  
Intel® 852GM + ICH4
- ◆ **BIOS**  
AMI BIOS
- ◆ **System Memory**  
1 x SO-DIMM 266MHz SDRAM up to 1GB
- ◆ **Ethernet**  
10/100Mbps Intel® 82562ET Ethernet chipset
- ◆ **I/O Interface**  
2 x IDE  
1 x LPT/FDD  
2 x RS-232  
4 x USB 2.0  
1 x PS/2
- ◆ **Expansions**  
4 x PCI bus master  
ISA support by Winbond W83629G / W83628G
- ◆ **Audio**  
AC' 97 CODEC
- ◆ **Super I/O**  
W83627HG
- ◆ **Display Interface**  
VGA integrated in Intel® 852GM 18-bit dual channel LVDS
- ◆ **Watchdog Timer**  
Software programmable supports 1-255 sec. system reset
- ◆ **Power Supply**  
AT/ATX support
- ◆ **Power Consumption**  
5V@3.8A (Celeron® M 1.5G, DDR266/256MB RAM)
- ◆ **Temperature**  
Operation: 0°C ~ 60°C (32 ~ 140° F)
- ◆ **Humidity**  
Operation: 5% ~ 95%, non-condensing
- ◆ **Dimensions**  
99.57 mm x 114 mm
- ◆ **Weight**  
GW: 650g; NW: 250g

## Dimensions



## Packing List

- 1 x IEM-PM single board computer
- 1 x CF-IEM-02 Hetsink (IEM-600E )
- 1 x Utility CD
- 1 x QIG (quick installation guide)

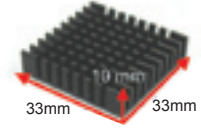
## Ordering Information

| Part No.        | Description                                                   |
|-----------------|---------------------------------------------------------------|
| IEM-PM-600E-R10 | ULV Intel Celeron® M 600 MHz ETX CPU Module with LAN function |

## IEM-LX

AMD LX800 Highly  
Integrated ETX ModuleETX CPU Module with AMD® LX800  
CPU on-board, USB 2.0, LAN & Audio

## Solder Side



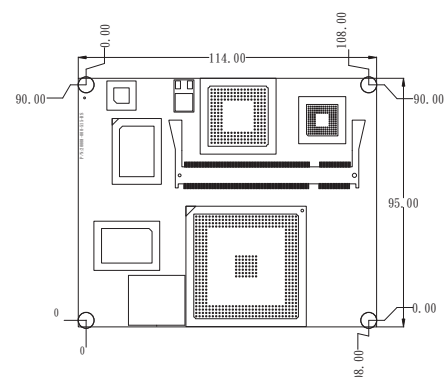
DDR400



## Specifications

- ◆ **CPU**  
AMD® LX800 processor
- ◆ **System Chipset**  
AMD® LX800 + AMD® CS5536
- ◆ **BIOS**  
Award BIOS
- ◆ **System Memory**  
1 x 200-pin DDR 400/333MHz SO-DIMM SDRAM up to 1GB
- ◆ **Ethernet**  
10/100Mbps RTL8100C Ethernet chipset
- ◆ **I/O Interface**  
4 x USB 2.0  
1 x LPT  
1 x CF Type II  
1 x IDE  
2 x RS-232  
1 x PS/2 KB/MS
- ◆ **Expansions**  
4 x PCI bus master  
ISA support by IT8888G
- ◆ **Audio**  
AC'97 Codec Realtek ALC203
- ◆ **Super I/O**  
W83627EHG
- ◆ **Display Interface**  
VGA integrated in AMD® LX800 24-bit TTL 18-bit single channel LVDS
- ◆ **Watchdog Timer**  
Software programmable supports 1-255 sec. system reset
- ◆ **Power Supply**  
AT/ATX support
- ◆ **Power Consumption**  
5V@0.92A (AMD LX-800 CPU with DDR 333MHz 256MB RAM)
- ◆ **Temperature**  
Operation: 0°C ~ 60°C (32 ~ 140° F)
- ◆ **Humidity**  
Operation: 5% ~ 95%, non-condensing
- ◆ **Dimensions**  
95 mm x 114 mm
- ◆ **Weight**  
GW: 650g; NW: 250g

## Dimensions



## Packing List

- 1 x IEM-LX single board computer
- 1 x Mini jumper pack
- 1 x Utility CD
- 1 x QIG (quick installation guide)

## Ordering Information

| Part No.       | Description                                                             |
|----------------|-------------------------------------------------------------------------|
| IEM-LX-800-R10 | AMD LX800 500MHz processor, VGA/LVDS/TTL, LAN & Audio                   |
| IEM-LX-CE060   | WindowsCE 6.0 Image & BSP S/W CD, Licensed Sticker (w/o CPU board)      |
| IEM-LX-CE050   | WindowsCE 5.0 Image & BSP S/W CD, Licensed Sticker (w/o CPU board)      |
| IEM-LX-XPE     | WindowsXP Embedded Image & SLD S/W CD, Licensed Sticker (w/o CPU board) |

1  
Single  
Board  
Computer2  
VIDEO  
CARD3  
Xscale  
Solutions4  
Open  
HMI5  
VITO  
Universal  
Controller6  
DINO  
BLADE7  
LCD  
Product  
Series8  
Embedded  
System9  
Industrial  
Computer  
Chassis10  
Power  
Supply11  
Peripherals

# IEM-8522

ETX CPU Module with Intel Pentium M / Celeron M CPU on-board,  
USB 2.0, LAN and Audio



Solder Side



FSB 400

DDR266



## Features

1. ETX Form Factor for flexible base board design
2. Intel Pentium M / Celeron M CPU FSB 400MHz on-board
3. Single channel DDR 200/266MHz up to 1GB
4. Support VGA, Dual Channels 18-bit LVDS and TV-out
5. 2 x RS-232, 4 x USB 2.0, LAN, Audio ready for base board

## Specifications

- ◆ CPU  
On-board Celeron M 600MHz 512K cache / 1.0GHz zero cache Processor with 400MHz FSB
- ◆ System Chipset  
Intel 852GM + ICH4
- ◆ BIOS  
AMI
- ◆ System Memory  
1 x 200-PIN Singal channel DDR 200/266MHz up to 1GB
- ◆ Ethernet  
10/100Mbps Intel 82562ET Ethernet chipset
- ◆ I/O Interface  
2 x RS-232  
1 x LPT  
4 x USB 2.0  
2 x IDE  
1 x FDD  
1 x KB/MS
- ◆ Expansions  
4 x PCI bus master  
ISA support by ITE IT8888G
- ◆ IrDA  
1 x IrDA by pin header
- ◆ Super I/O  
Winbond W83627HG
- ◆ Display Interface  
VGA Integrated in Intel 852GM  
18-bit dual channel LVDS
- ◆ Audio  
Realtek ALC655 with AC'97 codec
- ◆ Watchdog Timer  
Software programmable supports 1 ~255 sec. System reset
- ◆ Power Supply  
AT/ATX support
- ◆ Power consumption  
5V@3.5A, (Celeron M 1.0GZ, 256MB DDR 333MHz)
- ◆ Temperature  
operation: 0 ~ 60°C ( 32 ~ 140°F)
- ◆ Humidity  
operation: 5% ~95 non-condensing
- ◆ Dimensions  
95 mm x 114 mm
- ◆ Weight  
GW: 650 g / NW: 90 g

## Packing List

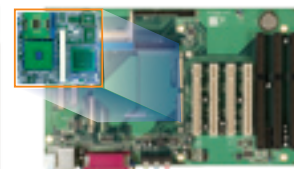
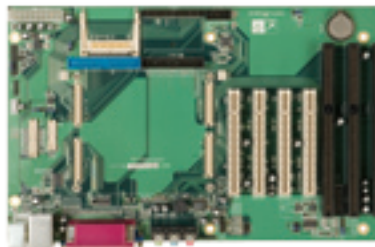
- 1 x IEM-8522 Single Board Computer
- 1 x Heatsink
- 1 x Utility CD
- 1 x QIG

## Ordering Information

| Part No.         | Description                                                           |
|------------------|-----------------------------------------------------------------------|
| IEM-8522E-R10    | Socket 479 Intel Pentium M/Celeron M ETX CPU Module with LAN function |
| IEM-8522-1GZ-R10 | ULV Intel Celeron M 1GHz zero cache ETX CPU Module with LAN function  |
| IEM-8522-600-R10 | ULV Intel Celeron M 600MHz 512 cache ETX CPU Module with LAN function |

# IEM-DB-7S-RS-R30

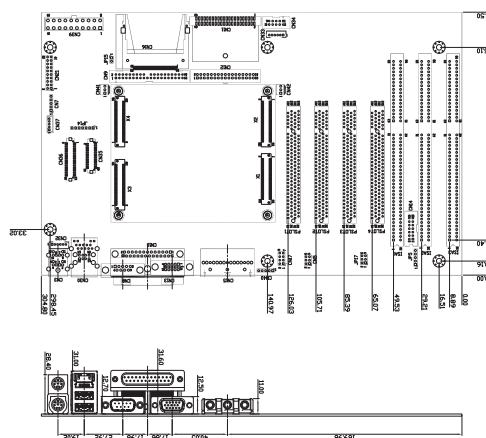
Full Function ETX Baseboard with VGA/ LVDS/ TTL, Audio, CF type II & Digital I/O



## Specifications

|                      |                                                           |
|----------------------|-----------------------------------------------------------|
| CPU Module Interface | ETX Form Factor                                           |
| Displan Interface    | 1 x 30-pin 48-bit DFP for LVDS<br>1 x40-pin for 24bit TTL |
| Expansions Solt      | 4 x PCI, 3 x ISA                                          |
| SSD                  | CF Type II                                                |
| Audio                | AC'97 codec                                               |
| Ethernet Connector   | 1 x RJ-45                                                 |
| RS-232               | 1                                                         |
| RS-232,422,485       | 1                                                         |
| KB/MS                | 2                                                         |
| LPT                  | 1                                                         |
| VGA                  | 1                                                         |
| USB 2.0              | 4                                                         |
| IDE Connector        | 2                                                         |
| FDD                  | 1                                                         |
| Digital I/O          | 4 inputs, 4 outputs                                       |
| IR connector         | 5 pin-header                                              |
| Power Supply         | ATX                                                       |

## Dimensions



## Packing List

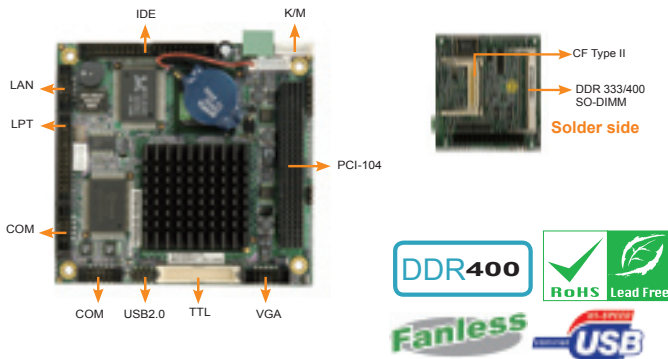
- 1 x IEM-Baseboard single board computer
- 1 x FDD cabel (P/N: 32200-000017-RS)
- 1 x HDD cable (P/N: 32200-000052-RS)
- 1 x RS-232/422/485 cable (P/N: 32200-000063-RS)
- 1 x Mini jumper pack
- 1 x User manual

## Ordering Information

| Part No.         | Description                    |
|------------------|--------------------------------|
| IEM-DB-7S-RS-R30 | ATX Size 7 Slots ETX Baseboard |

# PM-LX

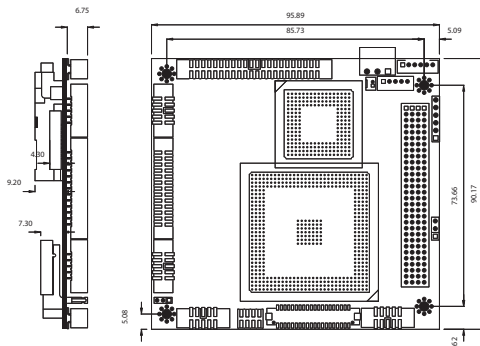
AMD LX800 CPU on-board  
PCI-104 Module



## Specifications

- ◆ **CPU**  
AMD® LX800 500MHz Processor
- ◆ **System Chipset**  
AMD® LX800 + AMD® CS5536
- ◆ **BIOS**  
Award BIOS
- ◆ **System Memory**  
1 x DDR 200-pin DDR333/400 SO-DIMM support up to 1GB
- ◆ **Ethernet**  
10/100Mbps Realtek RTL8100C Ethernet chipset
- ◆ **I/O Interface**  
2 x USB2.0  
1 x LPT  
2 x RS-232  
1 x RS-422/485  
1 x PS/2 for KB/MS  
1 x IDE
- ◆ **Expansions**  
1 x PCI-104
- ◆ **Super I/O**  
W83627EHG
- ◆ **SSD**  
CF Type II
- ◆ **Display Interface**  
VGA integrated in LX800  
24-bit TTL
- ◆ **Watchdog Timer**  
Software programmable supports 1-255 sec. system reset
- ◆ **Power Supply**  
5V Only, AT support
- ◆ **Power Consumption**  
5V@1.13A  
(LX800-500MHz, DDR 400/1G RAM)
- ◆ **Temperature**  
Operation: 0°~60°C
- ◆ **Humidity**  
Operation: 5%~95%,
- ◆ **Dimensions**  
95mm(L) x 95mm(W)
- ◆ **Weight**  
GW: 500g, NW: 110g

## Dimensions



## Packing List

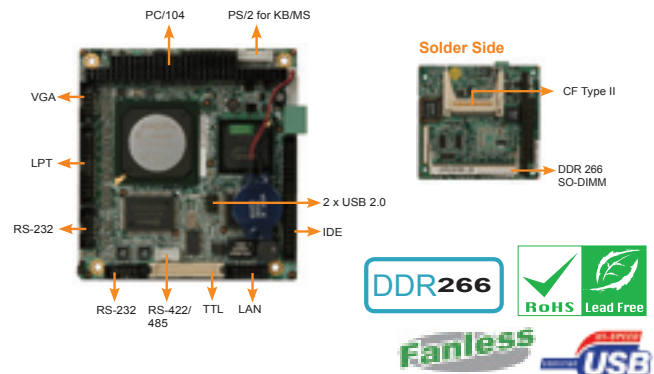
- 1 x PM-LX single board computer
- 1 x Mini jumper pack
- 1 x ATA33 flat cable (P/N: 32200-000009-RS)
- 2 x RS-232 cable (P/N: 32200-000049-RS)
- 1 x USB cable (P/N: P/N: 32000-070300-RS)
- 1 x VGA cable (P/N: 32000-033804-RS)
- 1 x LAN cable (P/N: 32000-055702-RS)
- 1 x Power cable (P/N: 32100-130300-RS)
- 1 x KB/MS Y cable (P/N: 32000-023800-RS)
- 1 x Utility CD
- 1 x QIG

## Ordering Information

| Part No.        | Description                                                             |
|-----------------|-------------------------------------------------------------------------|
| PM-LX-800-R10   | PCI-104 SBC with AMD LX800 Processor , VGA/TTL, LAN, USB2.0, CF Type II |
| PM-LX-CE050     | WindowsCE 5.0 Image & BSP S/W CD, Licensed Sticker (w/o CPU board)      |
| PM-LX-XPE       | WindowsXP Embedded Image & SLD S/W CD, Licensed Sticker (w/o CPU board) |
| 32200-015100-RS | LPT Cable                                                               |
| 32200-074800-RS | RS-422/485 Cable                                                        |

# PM-GX

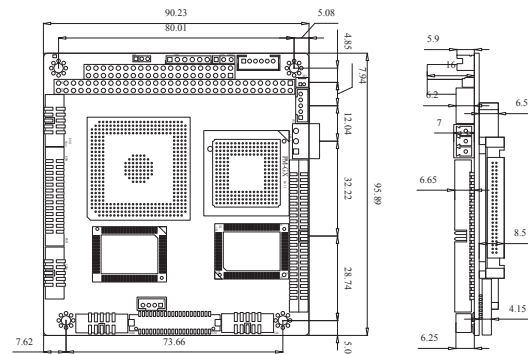
AMD® GX466 CPU on-board  
PC/104 Module



## Specifications

- ◆ **CPU**  
AMD® GX466 333 MHz processor
- ◆ **System Chipset**  
AMD® GX466 + CS5536
- ◆ **BIOS**  
Award BIOS
- ◆ **System Memory**  
1 x 200-pin DDR 266MHz SO-DIMM support up to 512MB
- ◆ **Ethernet**  
10/100Mbps RTL8100C Ethernet chipset
- ◆ **I/O Interface**  
2 x RS-232  
1 x RS-422/485  
2 x USB 2.0  
1 x IDE  
1 x PS/2 for KB/MS
- ◆ **Expansions**  
1 x PC/104
- ◆ **Super I/O**  
W83627EHG
- ◆ **SSD**  
CF Type II
- ◆ **Display Interface**  
VGA integrated in AMD® GX466  
24-bit TTL
- ◆ **Watchdog Timer**  
Software programmable supports 1-255 sec. system reset
- ◆ **Power Supply**  
5V only, AT support
- ◆ **Power Consumption**  
5V@1.05A  
(AMD® GX466, DDR 266MHz 512 MB)
- ◆ **Temperature**  
Operation: 0°~60°C
- ◆ **Humidity**  
Operation: 5%~95%,
- ◆ **Dimensions**  
96mm (L) x 90mm (W)
- ◆ **Weight**  
GW: 500g, NW: 110g

## Dimensions



## Packing List

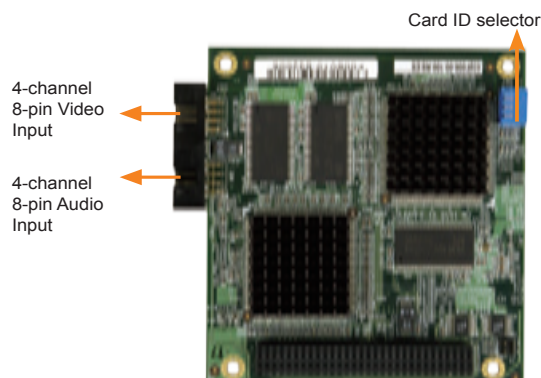
- 1 x PM-GX Single Board Computer
- 1 x ATA33 Flat Cable (P/N: 32200-000009-RS)
- 1 x Single RS-232 Cable (P/N: 32200-000049-RS)
- 1 x VGA Cable (P/N: 32000-033804-RS)
- 1 x LAN Cable (P/N: 32000-055702-RS)
- 1 x KB/MS Y Cable (P/N: 32000-023800-RS)
- 1 x USB Cable (P/N: 32000-070300-RS)
- 1 x Power Cable (P/N: 32100-130300-RS)
- 1 x Mini Jumper Pack
- 1 x Utility CD
- 1 x QIG (Quick Installation Guide)

## Ordering Information

| Part No.        | Description                                                                      |
|-----------------|----------------------------------------------------------------------------------|
| PM-GX-466-R10   | PC/104 SBC with AMD® GX466 333MHz Processor, VGA/TTL, LAN, USB2.0 and CF Type II |
| PM-GX-CE050     | WindowsCE 5.0 Image & BSP S/W CD, Licensed Sticker (w/o CPU board)               |
| PM-GX-XPE       | WindowsXP Embedded Image & SLD S/W CD, Licensed Sticker (w/o CPU board)          |
| 32200-015100-RS | LPT Cable                                                                        |
| 32200-074800-RS | RS-422/485 Cable                                                                 |

## PM-1059

## Hardware MPEG-4 Video/Audio PCI-104 Capture Module

Video input daughter board  
With 4 x BNC connectors

2x4p 2.54mm cable

2x4p 2.54mm  
to DB9 cableDB9 to RCA jack  
audio cable

## Features

- ◆ Total 30fps@720x480 for 4 channels
- ◆ Multi-channel real time encoding/decoding
- ◆ Video and audio synchronizing
- ◆ Supports on-screen-display(OSD)
- ◆ Built-in camera lost detection
- ◆ Hardware motion detection
- ◆ Digital watermarking

## Specifications

## ◆ Interface

|                       |                                |
|-----------------------|--------------------------------|
| Video Input           | 4 channels composite video     |
| Video Input Interface | 8-pin 2.54mm connector onboard |
| Audio Input           | 4 channels composite video     |
| Audio Input Interface | 8-pin 2.54mm connector onboard |
| PCI-104 Interface     | PCI Rev. 2.1 compliant         |
| Card ID               | DIP-switch selectable          |

## ◆ Video Processing

|                         |                                                          |                      |
|-------------------------|----------------------------------------------------------|----------------------|
| Video Compression       | MPEG-4 Advanced Simple Profile@level 5 (ISO/IEC 14496-2) |                      |
|                         | MPEG-2 Main Profile@main level(ISO/IEC 13818-2)          |                      |
|                         | MPEG-1 (ISO/IEC 11172-2)                                 |                      |
|                         | H.263(ITU-T Recommendation H.263)                        |                      |
| Resolution & frame rate | NTSC: 720x480@1~30fps                                    | PAL: 720x576@1~25fps |
|                         | 720x240@1~60fps                                          | 720x288@1~50fps      |
|                         | 360x240@1~120fps                                         | 360x288@1~100fps     |
|                         |                                                          |                      |

## ◆ Audio Processing

|                   |                       |
|-------------------|-----------------------|
| Audio Compression | G.726(ADPCM/PCM)      |
| Sampling Rate     | 8K, 44.1KHz and 48KHz |
| Quantization      | 8 bit data depth      |

## ◆ Functionality

|                             |                                       |
|-----------------------------|---------------------------------------|
| Video/audio Synchronization | Yes                                   |
| On-screen Display           | Yes                                   |
| Camera Loss Detection       | Yes                                   |
| Motion Detection            | Hardware Built-in                     |
| Watermarking                | 128 bit secret key, adjustable length |
| Encoding Bitrate Control    | VBR, CBR for each channel             |

## ◆ System Requirement

|         |                                                         |
|---------|---------------------------------------------------------|
| System  | x86 PC compatible computer                              |
| Graphic | DirectX compatible VGA card supporting YUV overlay mode |

## ◆ Software Support

|              |                                                                             |
|--------------|-----------------------------------------------------------------------------|
| Device Drive | Driver for Windows 2000/XP                                                  |
| SDK          | Provide SDK and demo program<br>Complete source code of demo program in C++ |

## ◆ Operation Environment

|                       |                                  |
|-----------------------|----------------------------------|
| Dimensionss           | 96mm x 91 mm                     |
| Operation Temperature | 0~60°C(32~140°F), non-condensing |
| Power Consumption     | 7.5W, 1.5A@5V                    |

## Packing List

|                                  |
|----------------------------------|
| 1 x PM-1059 video capture module |
| 1 x QIG                          |
| 1 x Utility CD                   |
| 1 x DB-9 to RCA jack audio cable |
| 1 x 2x4p 2.54mm cable            |
| 1 x video input daughter board   |
| 1 x 2x4p 2.54mm to DB-9 cable    |

## Ordering Information

| Part No.    | Description                                                 |
|-------------|-------------------------------------------------------------|
| PM-1059-R10 | 4-channel MPEG-4 video & audio PCI-104 capture module, RoHS |