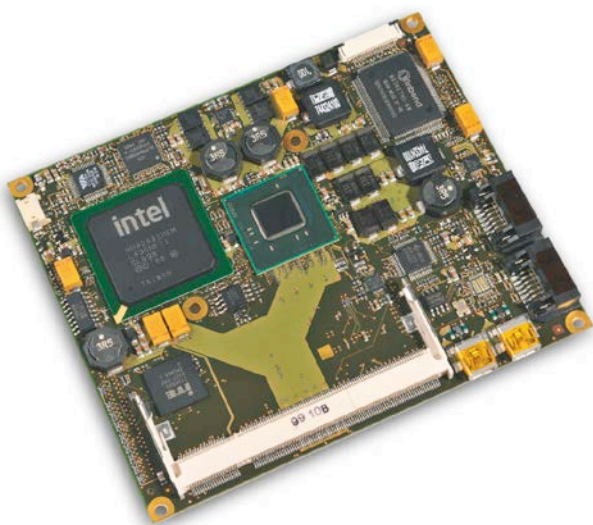


## MSC ETE-PV510

Intel® Atom™ Dual Core

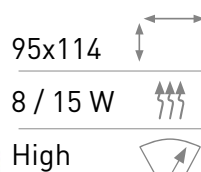


### Description

The design of the MSC ETE-PV510 module is based on Intel's second generation embedded Atom™ CPU technology offering dual core computing performance at low power consumption for demanding applications.

The Intel® Atom™ D510 dual core processor with integrated graphics paired with the established ICH8M bridge in a 2-chip design offers high graphics performance and many I/O options.

The MSC ETE-PV510 optionally delivers hardware and BIOS based security to protect the customer's IP. The implemented security scheme is compliant with the requirements of the TCG (Trusted Computing Group).



### Highlights

- Intel® Atom™ D510 (1.66GHz, dual core), Intel® Atom™ N450 (1.66GHz, single core), with integrated Intel® GMA 3150 graphics core
- Intel® ICH8M I/O controller hub
- Up to 2GB DDR2 SDRAM
- LVDS interface (18 bit, single channel) up to 1366 x 768
- CRT interface up to 2048 x 1536
- Dual Independent Display supported
- Six USB 2.0 interfaces

## Technical Data – MSC ETE-PV510

### Module Standard

**ETX® Standard 3.02**

### Core Logic, Memory

#### CPU

Intel® Atom D510 (dual core, 1.66 GHz, 1MB L2, 13W TDP),  
Intel® Atom N450 (single core, 1.66 GHz, 512kB L2, 5.5W TDP)  
with integrated graphics and memory controller

Intel® Technologies:  
Hyper-Threading, Intel® 64, Execute Disable Bit

#### Chipset

Intel® ICH8M

#### Memory

200-pin SO-DIMM socket for up to 2GB PC5300 DDR2 SDRAM  
[667MHz]

### Storage Interfaces

#### SATA

2 x SATA-2 channels (up to 300MB/s)

#### PATA

2 x Enhanced IDE ports [ATA/UDMA100]

#### Floppy

Shared with parallel port

#### Solid State Disk

1x 4GB NAND Flash SSD on primary IDE channel (option, on request)

### Bus Interfaces

#### ISA

Standard ISA interface [PCI/ISA Bridge ITE 8888]

#### PCI

32 Bit, 33MHz standard interface [PCI 2.3]

#### Serial Bus

I²C Bus  
SMBus

### Standard Interfaces

#### Parallel

Uni/EPP/ECP (shared with floppy I/F)

#### Serial

2 x TTL

#### Infrared

IrDA 1.1

#### Keyboard / Mouse

PS/2

#### USB

6 x USB 2.0 (two on on-board Mini-USB connectors)

### Display Interface

#### Graphics Controller

Intel® GMA 3150 graphics accelerator integrated in Intel® Atom processor, 400MHz, DirectX 9

#### Video Memory

UMA, up to 384 MB

#### LCD Interface

LVDS 18 bit, single channel, resolution 1366 x 768

#### CRT Interface

Resolution 2048 x 1536

### Miscellaneous

#### Watchdog Timer

Initiates system reset (programmable, 1s ... 255h)

#### Fan Supply

3-pin header (5V); speed controlled

#### Battery

on base board

#### System Monitoring

Voltage, temperatures (3 sensors), fan

### Network Interface

#### Ethernet

10/100 Base-T (RTL 8103T)

### Audio Interface

ETX compliant audio interface (VT 1708; Line In, Line Out, Mic)

### Firmware, Software

#### Phoenix SecurCore

#### Boot Options

Quick Boot, MultiBoot XP (FD, HD, CD, LAN, USB)  
Boot without keyboard, LAN Boot via PXE (RPL optional)

#### Power Management

ACPI [S3 cold, S4, S5 supported,  
active/passive cooling]

#### USB

USB legacy support (keyboard, mouse, stick, HDD, CD, floppy)

#### Video

VGA BIOS with flat panel extensions (EDID/EPI)

#### HW Programming I/F

UspEpc (Universal board support package for embedded PCs)

### Power Supply

#### Power Supply Voltage

+5V +/-5%, 5V Stby optional

#### Power Consumption

8W (N450) - 15W (D510) typ.

### Environment

#### Ambient Temperature

0° ... 60° C (operating)  
-25° ... 85° C (storage)

#### Humidity

5 ... 95% (operating, non-condensing)  
5 ... 95% (storage, non-condensing)

### Mechanical

#### Dimensions

95mm x 114mm x12mm

## Order Reference – MSC ETE-PV510

Order Number	Description	Reference
35295	Intel® Atom™ D510 Dual Core, 10/100/Base-TX	MSC ETE-PV510-001
37962	Intel® Atom™ N450 Single Core, 10/100/Base-TX	MSC ETE-PV510-004

## Accessories

Order Number	Description	Reference
	<b>Cooling</b>	
36629	Heatspreader for ETE-PV510, consisting of a specially formed aluminum plate with M2.5 distance holders, screws, grommets and two thermopads for the thermal contact to CPU and north bridge. 6 holes for countersunk screws allow mounting of a heatsink on top. No SO-DIMM cutout.	MSC ETE-PV510-01 HSP-001
38518	Heatspreader for ETE-PV510, consisting of a specially formed aluminum plate with pressed in distance holders (3mm inner diameter), screws, grommets and two thermopads for the thermal contact to CPU and north bridge. 6 holes for countersunk screws allow mounting of a heatsink on top. No SO-DIMM cutout.	MSC ETE-PV510-02 HSP-001
36627	Passive heatsink solution for ETE-PV510, consisting of a single-piece aluminum profile with fins, M2.5 distance holders, screws, grommets and two thermopads for the thermal contact to CPU and north bridge. No fan, no SO-DIMM cutout.	MSC ETE-PV510-01 HSI-001
36068	Fan kit - suitable for Heat sink MSC ETE-PV510-01. The kit consists of a 60x60mm fan, spacers and screws.	MSC ETE-PV510-01 FKT-001
	<b>Carrier Boards</b>	
31635	Base board in ATX form factor; with many debugging aids, Super-I/O controller and various interfaces	MSC ETE-MB-ATX
32351	Base board in PISA form factor, also usable as stand-alone base board for evaluation and small series production; floppy controller; many PC typical I/O interfaces; power connector	MSC ETE-MB-PISA
	<b>Memory Modules*</b>	
1054514	DDR2 SODIMM, 512MB, 64Mx64, unb., PC667, CL4, 1rank	HYMP164S64CP6-Y5-C
1051494	DDR2 SODIMM, 1GB, PC800, 128Mx64, 1.8V, 2rank	HYMP112S64CP6-S6
1051595	DDR2 SODIMM, 2GB PC800, 256Mx64, 128Mx8, CL5, 1.8V	HYMP125S64CP8-S6
*	Pre-qualified memory modules for the CPU product above	

### Corporate Offices

**MSC Vertriebs GmbH**, Industriestraße 16, 76297 Stutensee, Tel. +49 7249 910 – 0, Fax +49 7249 7993 0  
**MSC Vertriebs GmbH, Design Center München-Neufahrn**, Zeppelinstr. 1A, 85375 Neufahrn, Tel. +49 8165 906 – 100, E-mail: [boards@msc-ge.com](mailto:boards@msc-ge.com),  
**Technical Support COM**: Tel. +49 8165 906 – 200, E-mail: [support.boards@msc-ge.com](mailto:support.boards@msc-ge.com), Internet: [www.msc-ge.com/support-boards](http://www.msc-ge.com/support-boards)

### Sales Offices Germany

**München-Dornach** · Tel. +49 89 945532 – 0 · **Berlin** · Tel. +49 30 720089 – 0 · **Hamburg** · Tel. +49 4106 7764 – 0 · **Hannover** · Tel. +49 511 616847 – 0 ·  
**Braunschweig** · Tel. +49 5341 2999 – 0 · **Düsseldorf** · Tel. +49 211 92593 – 0 · **Aachen** · Tel. +49 2408 709 – 0 · **Koblenz** · Tel. +49 2630 96239 – 11 ·  
**Rodgau** · Tel. +49 6106 26769 – 0 · **Wiesbaden** · Tel. +49 611 97320 – 0 · **Frankenthal** · Tel. +49 6233 344 – 0 · **Stuttgart** · Tel. +49 711 78336 – 0 ·  
**Freiburg** · Tel. +49 761 8819 – 819 · **Nürnberg** · Tel. +49 911 43970 – 0 · **Jena** · Tel. +49 3641 6825 – 0 · **Stutensee** · Tel. +49 7249 910-173

### Sales Offices Europe

**MSC Vertriebs GmbH · Leobersdorf** · Tel. +43 2236 205066 – 0 · **Velden** · Tel. +43 4274 23222 – 17 · **MSC Schweiz AG · Biel/Bienne** · Tel. +41 32 366 8565 ·  
**Montreux** · Tel. +41 21 965 3500 · **Rotkreuz** · Tel. +41 41 785 8200 · **Volketswil** · Tel. +41 43 355 33 66 ·  
**MSC Iberia S.L. · Barcelona** · Tel. +34 931 505 505 · **Madrid** · Tel. +34 91 72169 – 51 ·  
**MSC France · Paris** · Tel. +33 1 45128230 · **Strasbourg** · Tel. +33 3 88 651843 · **Lyon** · Tel. +33 4 72 756020 ·  
**MSC Italia Srl · Tel. +39 039 63089-1** · **MSC Nederland BV · Tel. +31 78 6920 – 150** · **MSC Belgium Office · Tel. +32 2 452 6451** ·  
**MSC (UK) LTD. · Brighton** · Tel. +44 1273 622446 · **Weybridge** · Tel. +44 1932 268990 · **Milton Keynes** · Tel. +44 1908 263999 ·  
**MSC (Scotland) LTD. · Tel. +44 1506 460555** · **MSC Representative (DK) MK Nordic ApS · Tel. +45 24 252745** ·  
**MSC-Vertriebs-CZ s.r.o. · Blansko** · Tel. +420 516 411494 – 15 · **Prague** · Tel. +420 251 261 130 ·  
**MSC-Vertriebs-SK s.r.o. · Zilina** · Tel. +421 41 5001243 · **MSC Budapest Kft. · Tel. +36 1250 90 – 40** ·  
**MSC Polska Sp. z o.o. · Tel. +48 323 3054 – 50** · **MSC-Mibatron s.r.l. · Bucharest** · Tel. +40 31 1023466 · Tel. +40 21 2302530 ·  
**MSC Vertriebs GmbH · Istanbul** · Tel. +90 216 411 2333

