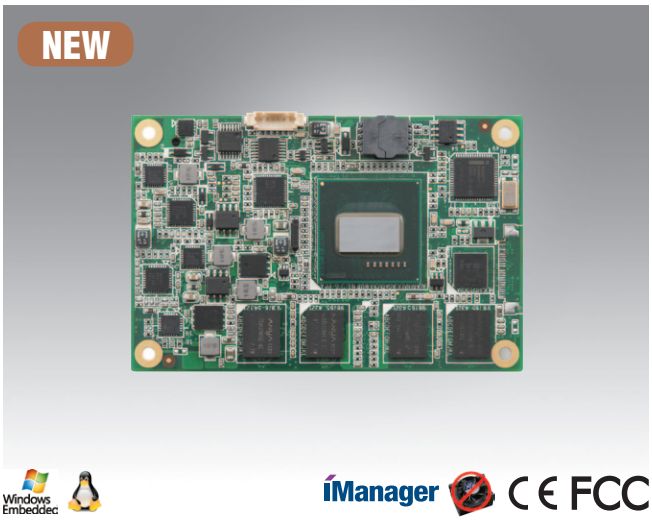
SOM-7564

Intel® Atom™ Processor E6xx Series COM-Express Mini Module



Features

- Embedded Intel® Atom™ processor E6xx series up to 1.6 GHz
- Supports 1 GB DDR2 Memory on board
- Supports 3 PCIe x1, LPC, 1 GbE
- Supports Advantech iManager and software APIs

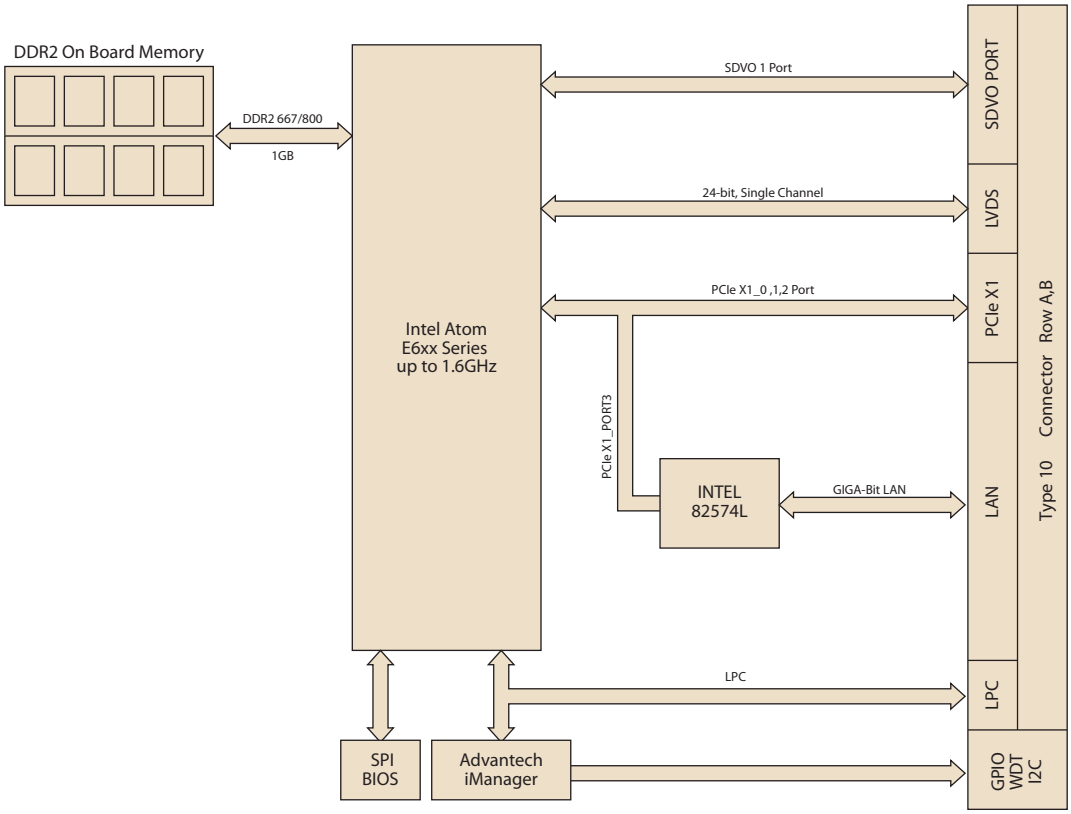
Software APIs: Watchdog, I²C, SMBus, H/W Monitor, GPIO, Backlight On/Off

Utilities: BIOS flash, Monitoring, Flash Lock, Embedded Security ID

Specifications

Form Factor		COM-Express Mini Module Type 10 Pin-out
Processor System	CPU	Intel Atom E620 600 MHz / E660 1.3 GHz / E680 1.6 GHz
	L2 Cache	512 KB
	System Chipset	Intel Atom Processor E6xx Series Integrated
	BIOS	AMI 16 Mbit Flash BIOS
Memory	Technology	DDR2 667/800 MHz memory
	Max. Capacity	Onboard 1 GB memory
	Socket	-
Flash	Capacity	-
Display	Chipset	Intel Atom processor E6xx series integrated graphic controller
	Graphics Engine	2D/3D graphic engine
	LVDS	24-bit single channel LVDS
	SDVO	1 port to carrier board
	Dual Display	LVDS + SDVO
Ethernet	Chipset	Intel 82574L Gigabit Ethernet
	Speed	10/100/1000 Mbps
WatchDog Timer		65536 level timer interval, from 0~65535 sec, multi-level, multi-option watchdog timer
Expansion		LPC, 3 PCIe x1 SPI, SMBus, I2C
I/O	SATA	Depends on IOH
	USB	Depends on IOH
	Audio	High definition audio interface
	GPIO	8-bit GPIO
Power	Power Type	ATX, AT
	Power Supply Voltage	12V, 5VSB
	Power Consumption (Typical)	+12 V @ 0.37 A (E680)
	Power Consumption (Max, test in Burn-in 6.0)	+12 V @ 0.51 A (E680)
Environment	Operating Temperature	0 ~ 60° C (32 ~ 140° F)
	Operating Humidity	0% ~ 90% relative humidity, non-condensing
Mechanical	Dimensions	84 x 55 mm (3.3" x 2.17")

Board Diagram



Ordering Information

Part No.	CPU	L2 Cache	Onboard Memory	LVDS	Giga LAN	HD Audio	PCIe x1	I²C bus	LPC	SMBus	Wide range Power	ATX Power	AT Power	Thermal Solution
SOM-7564FG-M0A1E	600 MHz	512 KB	1 GB	24-bit	1	Yes	2	1	1	1	+5 - +14V	Yes	Yes	Passive
SOM-7564FG-S3A1E	1.3 GHz	512 KB	1 GB	24-bit	1	Yes	2	1	1	1	+5 - +14V	Yes	Yes	Passive
SOM-7564FG-S6A1E	1.6 GHz	512 KB	1 GB	24-bit	1	Yes	2	1	1	1	+5 - +14V	Yes	Yes	Passive

Development Board

Part No.	Description
SOM-AB5500-00A1E	3.5" Application Board for COM-Ultra Modules

Optional Accessories

Part No.	Description
1960050950N001	Semi-Heatsink 84 x 55 x 34 mm

Packing List

Part No.	Description	Quantity
-	SOM-7564 CPU Module	1
1960053878N001	Heatspreader	1

Embedded OS

OS	Part No.	Description
Win XPE	TBD	XPE WES 2009

Value-Added Software Services

Software API: An interface that defines the ways by which an application program may request services from libraries and/or operating systems. Provides not only the underlying drivers required but also a rich set of user-friendly, intelligent and integrated interfaces, which speeds development, enhances security and offers add-on value for Advantech platforms. It plays the role of catalyst between developer and solution, and makes Advantech embedded platforms easier and simpler to adopt and operate with customer applications.

Software APIs

Control

GPIO

General Purpose Input/Output is a flexible parallel interface that allows a variety of custom connections. It allows users to monitor the level of signal input or set the output status to switch on/off a device. Our API also provides Programmable GPIO, which allows developers to dynamically set the GPIO input or output status.

SMBus

SMBus is the System Management Bus defined by Intel® Corporation in 1995. It is used in personal computers and servers for low-speed system management communications. The SMBus API allows a developer to interface a embedded system environment and transfer serial messages using the SMBus protocols, allowing multiple simultaneous device control.

I²C

I²C is a bi-directional two wire bus that was developed by Philips for use in their televisions in the 1980s.
The I²C API allows a developer to interface with an embedded system environment and transfer serial messages using the I²C protocols, allowing multiple simultaneous device control.

Monitor

Watchdog

A watchdog timer (WDT) is a device that performs a specific operation after a certain period of time if something goes wrong and the system does not recover on its own.
A watchdog timer can be programmed to perform a warm boot (restarting the system) after a certain number of seconds.

Hardware Monitor

The Hardware Monitor (HWM) API is a system health supervision API that inspects certain condition indexes, such as fan speed, temperature and voltage.

Hardware Control

The Hardware Control API allows developers to set the PWM (Pulse Width Modulation) value to adjust fan speed or other devices; it can also be used to adjust the LCD brightness.

Display

Brightness Control

The Brightness Control API allows a developer to interface with an embedded device to easily control brightness.

Backlight

The Backlight API allows a developer to control the backlight (screen) on/off in an embedded device.

Power Saving

CPU Speed

Make use of Intel SpeedStep technology to reduce power power consumption. The system will automatically adjust the CPU Speed depending on system loading.

System Throttling

Refers to a series of methods for reducing power consumption in computers by lowering the clock frequency. These APIs allow the user to lower the clock from 87.5% to 12.5%.

Software Utilities

BIOS Flash

The BIOS Flash utility allows customers to update the flash ROM BIOS version, or use it to back up current BIOS by copying it from the flash chip to a file on customers' disk. The BIOS Flash utility also provides a command line version and API for fast implementation into customized applications.

Embedded Security ID

The embedded application is the most important property of a system integrator. It contains valuable intellectual property, design knowledge and innovation, but it is easily copied! The Embedded Security ID utility provides reliable security functions for customers to secure their application data within embedded BIOS.

Monitoring

The Monitoring utility allows the customer to monitor system health, including voltage, CPU and system temperature and fan speed. These items are important to a device; if critical errors happen and are not solved immediately, permanent damage may be caused.

eSOS

The eSOS is a small OS stored in BIOS ROM. It will boot up in case of a main OS crash. It will diagnose the hardware status, and then send an e-mail to a designated administrator. The eSOS also provides remote connection: Telnet server and FTP server, allowing the administrator to rescue the system.

Flash Lock

Flash Lock is a mechanism that binds the board and CF card (SQFlash) together. The user can "Lock" SQFlash via the Flash Lock function and "Unlock" it via BIOS while booting. A locked SQFlash cannot be read by any card reader or boot from other platforms without a BIOS with the "Unlock" feature.