

SOM-5788

Intel® Intel® Core™ i7 COM-Express CPU Module

Preliminary



Features

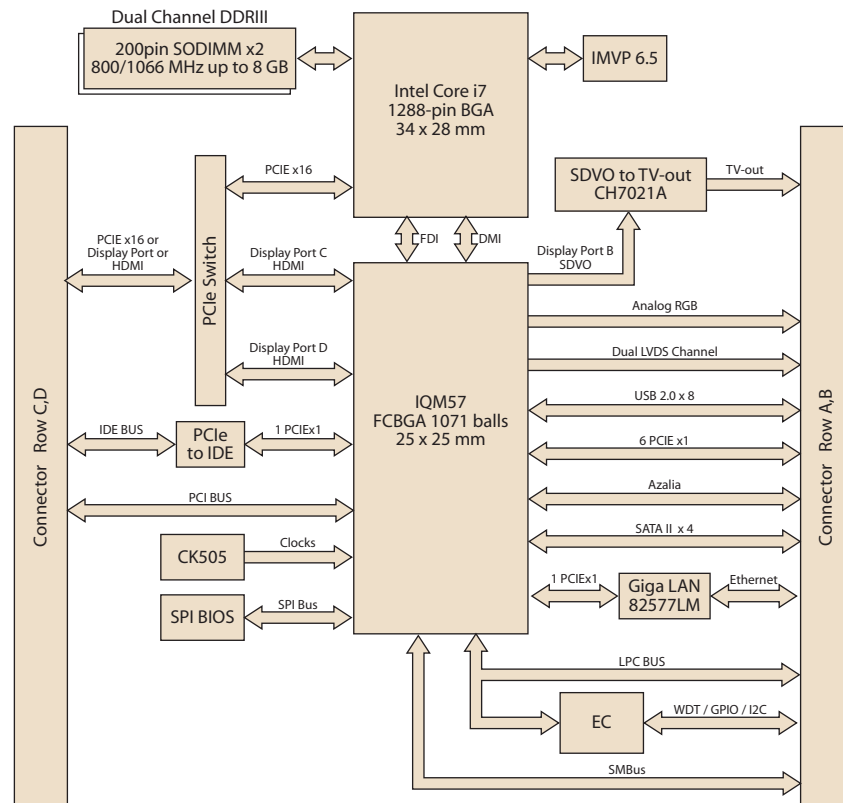
- Embedded Intel® Core™ i7 processor + QM57
- Intel® GMA integrated in Intel® Core™ i7 or Intel® Core™ i5
- Supports 6 PCIe x 1, 4 PCI masters
- Supports 4 SATAII ports, 8 USB2.0 ports
- Supports embedded software APIs and Utilities

Software API:						
	Watchdog	I2C	SMBus	H/W Monitor	GPIO	Backlight On/Off
Utility:						
	BIOS flash	eSOS	Monitoring	Flash Lock	Embedded Security ID	

Specifications

Form Factor		COM-Express, Module Pin-out Type II
Processor System	CPU	Intel® Core™ i7 processor, SV 2.66 GHz, Arrandale LV 1.86 GHz, Arrandale ULV 1.06 GHz
	System Chipset	QM57
	BIOS	AMI 64 Mbit Flash BIOS
Memory	Technology	DDR3 800/1066 MHz
	Max. Capacity	up to 8 GB
	Socket	2 x 204-pin SODIMM sockets
Display	Chipset	Intel® GMA integrated in Core™ i7 or Intel® Core™ i5
	Graphic Engine	Intel Gen HDMI, DVI, TV-out shared with PEG
	LVDS	Single and Dual channel 18/24-bit LVDS
	VGA	up to 2048 x 1536
Ethernet	Chipset	Intel 82577LM Gigabit Ethernet
	Speed	10/100/1000Base-T
WatchDog Timer		256 levels timer interval, from 0 to 255 sec or min setup by software, jumperless selection, generates system reset
Expansion		LPC, 6 PCIe x 1 and 1 PEG x 16, 4 PCI masters
I/O	PATA	1 x EIDE (UDMA 100)
	SATA	4 x SATAII (300 MB/s)
	USB	8 x USB 2.0
	Audio	High definition audio interface
	GPIO	8-bit GPIO
Power	Power Type	ATX, AT
	Power Supply Voltage	+12 V and +5 VSB for ATX, +12V for AT
	Power Consumption (Typical)	TBD
	Power Consumption (Max, test in HCT)	TBD
Environment	Operating Temperature	0 ~ 60° C (32 ~ 140° F) (-20 ~ 80° C degree optional by OEM)
	Operation Humidity	0% ~ 90% relative humidity, non-condensing
Mechanical	Dimension	95 x 125 mm (3.74" x 4.92")

Board Diagram



Ordering Information

Part No.	CPU	L2 Cache	Chipset	LVDS	VGA	Giga LAN	HD Audio	PCIe x 4	PCIe x 1	PCI	USB 2.0	SATA	LPC	SMBUS	ATX Power	AT Power	Thermal Solution	OperationTemp.
SOM-5788FG-U7A1E	Core i7 SV 2.66 GHz	4 MB L2	Intel® Core™ i5	18/24-bit	V	1	V	Option	6	4	8	3 x SATAII	1	1	V	V	Active	0 ~ 60° C
SOM-5788FG-S9A1E	Core i7 LV 1.86 GHz	4 MB L2	Intel® Core™ i5	18/24-bit	V	1	V	Option	6	4	8	3 x SATAII	1	1	V	V	Active	0 ~ 60° C
SOM-5788FG-S1A1E	Core i7 ULV 1.06 GHz	4 MB L2	Intel® Core™ i5	18/24-bit	V	1	V	Option	6	4	8	3 x SATAII	1	1	V	V	Active	0 ~ 60° C
SOM-5788FG-U4A1E	Core i5 SV 2.4 GHz	4 MB L2	Intel® Core™ i5	18/24-bit	V	1	V	Option	6	4	8	3 x SATAII	1	1	V	V	Active	0 ~ 60° C

Development Board

Part No.	Description
SOM-DB5700G-00A2E	Development Board for COM-Express with GLAN

Packing List

Part No.	Description	Quantity
	SOM-5788 CPU Module	1
	Utility CD	1
	Heatspreader	1

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 API

Control



GPIO

General Purpose Input/Output is a flexible parallel interface that allows a variety of custom connections. allows users to monitor the level of signal input or set the output status to switch on/off the device. Our API also provide Programmable GPIO, 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 a embedded system environment and transfer serial messages using the I2C protocols, allowing multiple simultaneous device control.

Display



Brightness Control

The Brightness Control API allows a developer to interface Embedded device to easily control brightness.



Backlight

The Backlight API allows a developer to control the backlight (screen) on/off in Embedded Device.

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

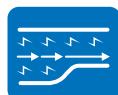
The Hardware Control API allows developers to set the PWM (Pulse Width Modulation) value to adjust Fan Speed or other devices; can also be used to adjust the LCD brightness.

Power Saving



CPU Speed

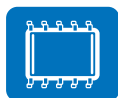
Make use of Intel SpeedStep technology to save the power consumption. The system will automatically adjust the CPU Speed depend on the system loading.



System Throttling

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

Software Utility



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 easy to be copied! Embedded Security ID utility which provides reliable security functions for customers to secure their application data within embedded BIOS.



Monitoring

The Monitoring is a utility for customer to monitor the system health, like Voltage, CPU and System temperature and FAN speed. These items are important to a device, if the critical errors happen and not be solved immediately, a permanent damage may be caused.



eSOS

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



Flash Lock

Flash Lock is a mechanism to bind the Board and CF card (SQFlash) together. User can "Lock" SQFlash via Flash Lock function and "Unlock" by BIOS while booting. A locked SQFlash cannot be read by any card reader or boot from other platforms without a BIOS with "Unlock" feature.