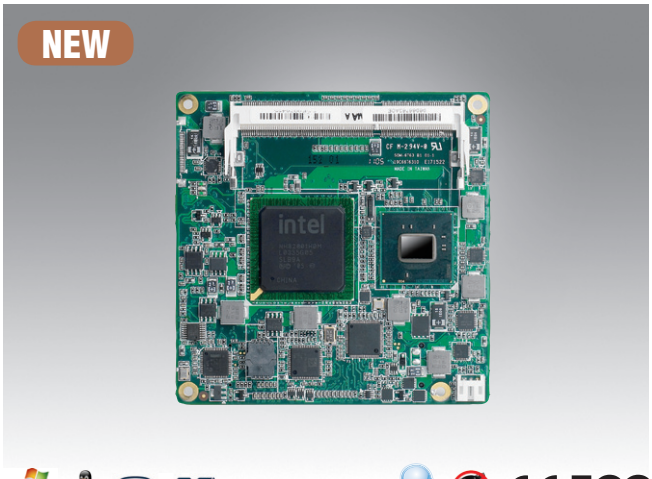
SOM-6763 B1

Intel® Atom™ Processor N455/D525 COM-Express Compact Module



Features

- Embedded Intel® Atom™ Processor N455 SC 1.66 GHz / D525 DC 1.80 GHz + ICH8M
- Intel Gen 3.5 DX9, MPEG2 Decode in HW, supports 24-bit LVDS, VGA
- Supports 2 DDR3-667 for N455 up to 2 GB and DDR3-800 for D525 up to 4 GB SODIMMB
- Supports 5 PCIe x 1, 4 PCI masters, LPC, 3 SATAII, 8 USB 2.0, EIDE, GbE
- Supports Advantech iManager and software APIs

Software APIs: Watchdog, I²C, SMBus, H/W Monitor, GPIO, Brightness Control

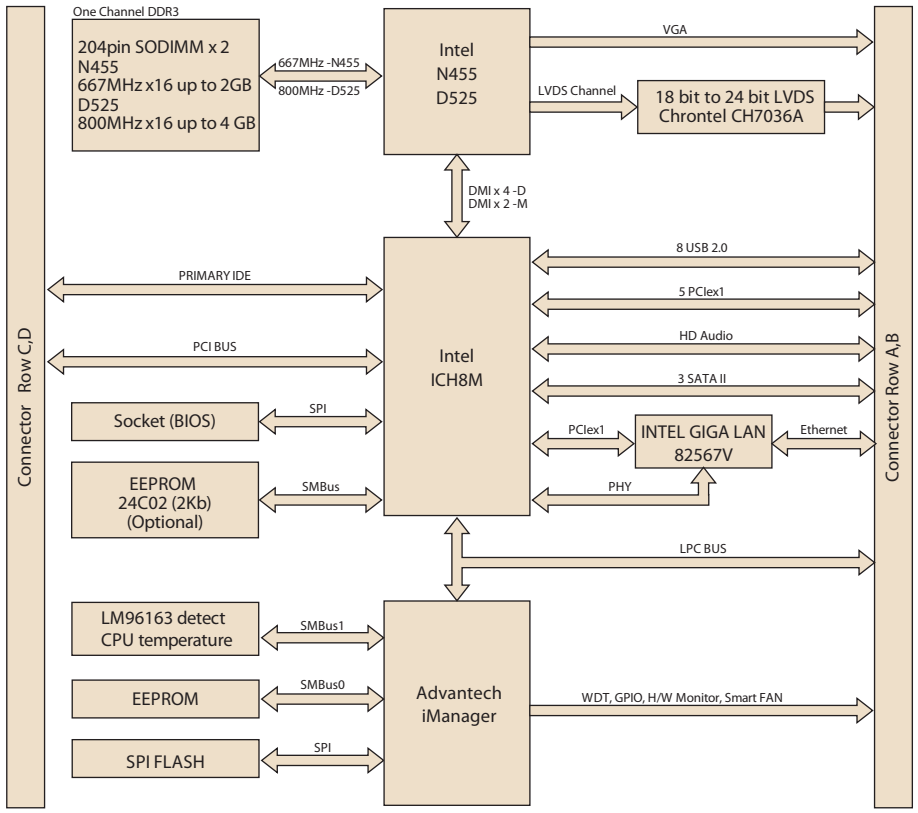
Utilities: BIOS flash, eSOS, Monitoring, Flash Lock, Embedded Security ID

iManager

Specifications

Form Factor		COM-Express R2.0 Compact Module, Type II Pin-out.	
Processor System	CPU	Intel Atom Processor N455 1.66 GHz (single core), 512 KB L2 Cache Intel Atom Processor D525 1.80 GHz (dual core), 1 MB L2 Cache	
	System Chipset	ICH8M	
	BIOS	AMI 16 Mbit Flash BIOS	
Memory	Technology	Supports DDR3 667 MHz (N455) and 800 MHz (D525)	
	Max. Capacity	up to 2GB for N455; up to 4GB for D525	
	Socket	2 x 204-pin SODIMM sockets	
Display	Chipset	Intel Atom N455 or Intel Atom D525	
	Graphic Engine	Intel Gen 3.5 DX9, MPEG2 Decode in HW	
	LVDS	24-bit single channel LVDS	
	VGA	Intel Atom N455 up to 1400 x 1050 Intel Atom D525 up to 2048 x 1536	
	DVI	-	
	TV Out	-	
	SDVO	-	
	Dual Display	CRT + LVDS	
Ethernet	Chipset	Intel 82567V 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, 5 PCIe x1 (1 PCIe x4), 4 PCI masters, I²C	
I/O	PATA	1 EIDE (UDMA 100)	
	SATA	3 SATAII (300 MB/s)	
	USB	8 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)	6763N (2 GB DDR3 667) +12 V @ 0.9 A	6763D (2 GB DDR3 800) +12 V @ 0.94 A
	Power Consumption (Max, test in HCT)	6763N (2 GB DDR3 667) +12 V @ 1.3 A	6763D (2 GB DDR3 800) +12 V @ 1.5 A
Environment	Operating Temperature	0 ~ 60° C (32 ~ 140° F)	
	Operating Humidity	0% ~ 90% relative humidity, non-condensing	
Mechanical	Dimension	95 x 95 mm (3.74" x 3.74")	

Board Diagram



Ordering Information

Part No.	CPU	L2 Cache	Chipset	LVDS	VGA	Giga LAN	HD Audio	PCIe x4	PCIe x1	PCI	USB 2.0	SATA II	LPC	SMBus	ATX Power	AT Power	Thermal Solution	Operating Temp.
SOM-6763N-S6B1E	Atom N455 1.66 GHz	512 KB	ICH8M	24-bit	Yes	1	Yes	Option	5	4	8	3	1	1	Yes	Yes	Passive	0 ~ 60° C
SOM-6763D-S8B1E	Atom D525 1.8 GHz	1 MB	ICH8M	24-bit	Yes	1	Yes	Option	5	4	8	3	1	1	Yes	Yes	Active	0 ~ 60° C
SOM-6763NZ-S6B1E	Atom N455 1.66 GHz	512 KB	ICH8M	24-bit	Yes	1	Yes	Option	5	4	8	3	1	1	Yes	Yes	Passive	-20 ~ 80° C
SOM-6763NZ2-S6B1E	Atom N455 1.66 GHz	512 KB	ICH8M	24-bit	Yes	1	Yes	Option	5	4	8	3	1	1	Yes	Yes	Passive	-40 ~ 85° C
SOM-6763DZ-S8B1E	Atom D525 1.8 GHz	1 MB	ICH8M	24-bit	Yes	1	Yes	Option	5	4	8	3	1	1	Yes	Yes	Active	-20 ~ 80° C
SOM-6763DZ2-S8B1E	Atom D525 1.8 GHz	1 MB	ICH8M	24-bit	Yes	1	Yes	Option	5	4	8	3	1	1	Yes	Yes	Active	-40 ~ 85° C

Development Board

Part No.	Description
SOM-DB5700G-00A2E	Development board for COM-Express GLAN Rev.A2

Optional Accessories

Part No.	Description
1960048815N001	Semi-Heatsink 95 x 95 x 17 mm
1960048819N001	Semi-Cooler 95 x 95 x 33.5 mm with 12V fan

Packing List

Part No.	Description	Quantity
-	SOM-6763 B1 CPU Module	-
-	Utility CD	1
1960049022N001	Heatspreader	1

Embedded OS

OS	Part No.	Description
Win XPE	2070009031	XPE WES2009 Lu- Pier V4.0 MUI24
Win CE 7.0	2070010929	Image CE 7.0 Pro SOM-6763 B1 V1.0 ENG

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

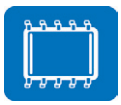
CPU Speed

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.

Last updated : 7-Dec-2011