

## MSC Q7-US15W-FD

Intel® Atom™ Z5x0

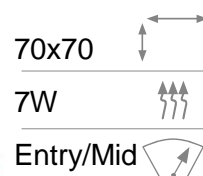


### Description

The design of the MSC Q7-US15W-FD module is based on Intel's ATOM™ CPU technology and the US15W System Control Hub (SCH) offering lowest power consumption x86 technology and a high degree of functional integration for entry level embedded applications.

The Z5x0 processor with its low power consumption is ideally suited for fanless designs. Paired with the Intel® US15W SCH the design offers integrated graphics and many I/O options. Some module versions are available with 1.8/3.6/7.2GB on board IDE Flash Memory device. The Greenliant MLC NANDrive offer unique features like 10 Million host write cycles with advanced NAND management technology.

MSC Q7-US15W-FD optionally delivers hardware and BIOS based security to protect the customers IP. The implemented security scheme is compliant with the requirements of the TCG (Trusted Computing Group).



### Highlights

- Intel® Atom™ Z5x0 (up to 1.6GHz)
- Mobile Intel® US15W System Controller Hub with integrated Intel® GMA 500
- Up to 2 GB DDR2 SDRAM, soldered
- Up to 8 GB on board Flash, bootable
- 10 / 100 / 1000 Base-TX Ethernet interface
- LVDS interface (18 / 24 Bit) up to 1366 x 768
- SDVO interface up to 1920 x 1200
- Dual Independent Display supported
- SATA-150 & SDIO interface
- Eight USB 2.0, one with client option
- High Definition Audio interface/s

## Technical Data – MSC Q7-US15W-FD

### Module Standard

**Qseven™ Standard**  
Rev 1.2 compliant interface

### Core Logic, Memory

**CPU**  
Intel® Atom Z530 (1.6GHz), Z510 (1.1GHz)

**Chipset**  
Intel® US15W SCH

**Memory**  
512MB/1GB DDR2-533 SDRAM on board  
OEM versions with 2GB SDRAM on request

### Storage Interfaces

**SATA**  
One SATA channel (up to 150MB/s)

**Flash Disk**  
Flash disk 4GB optional, OEM versions with others sizes on request

### Bus Interfaces

**USB**  
8 x USB 2.0 host

**PCI Express™**  
One channels PCI Express x1 on the Qseven connector  
(one channel used for Gbit Ethernet)

**LPC**  
Low Pin Count bus for legacy interfaces on Qseven connector

### Display Interface

**Graphics Controller**  
Intel® Graphics Media Accelerator 500, (integrated in Intel® US15W SCH)

**Video Memory**  
UMA, up to 384 MB

**LCD Interface**  
LVDS 24/48 Bit, single channel, Resolution 1366 x 768  
SDVO up to 1920 x 1200

### Miscellaneous

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

**Fan Supply**  
3-pin header (5V) for system fan, fan speed control

**RTC**  
Part of US15W System Control Hub, battery extended

**System Monitoring**  
Voltage, Temperature, Fan

### Network Interface

**Ethernet**  
10/100/1000Base-TX (Intel® WG82583V)

### Audio Interface

High Definition Audio

### Security Device

Infineon TPM 1.2 SLB 9635, optional

### Firmware, Software

**Boot Options**  
Quick Boot, MultiBoot XP (FD, HD, CD, LAN, USB), Boot without keyboard, LAN Boot via PXE (RPL optional), Wake on LAN (WOL) and boot from SDIO (Linux only) supported

**Security (optional)**  
Phoenix StrongROM technology, TPM 1.2 support, Pre-Boot-Authentication, Phoenix SecureFlash for safe BIOS updates

**Power Management**  
ACPI (S3 hot, S4, S5 supported), Enhanced Intel SpeedStep® technology supported, Active/passive cooling

**USB**  
USB legacy support (Keyboard, Mouse, Hub)

**Video**  
VGA BIOS with flat panel extensions (EPI)

**Setup**  
CMOS configuration backup in EEPROM

**HW Programming I/F**  
EAPI – Embedded Application Interface (PICMG specification)  
UsPEpc – MSC Universal board support package

**Board Support Package (BSP)**  
Microsoft Windows XP (e), Linux

### Power Supply

**Power Supply Voltage**  
+5V +/-5%, 5V Stby optional

**Power Consumption**  
7W typ. (Z530, 1.60GHz)

### Environment

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

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

### Mechanical

**Dimensions**  
70mm x 70mm x13mm

## Order Reference – MSC Q7-US15W-FD

Order Number	Description	Reference
32456	Intel® Atom™ Z510, 512MB, 1GbE, no Flash, SATA, 1x PCI Express x1	MSC Q7-US15W-FD-001
32457	Intel® Atom™ Z530, 1024MB, 1GbE, no Flash, SATA, 1x PCI Express x1	MSC Q7-US15W-FD-002
39400	Intel® Atom™ Z510, 1024MB, 1GbE, 3.6GB Flash, SATA, 1x PCI Express x1, TPM	MSC Q7-US15W-FD-013
39402	Intel® Atom™ Z530, 1024MB, 1GbE, 3.6GB Flash, SATA, 1x PCI Express x1, TPM	MSC Q7-US15W-FD-014
39378	Intel® Atom™ Z510, 1024MB, 1GbE, 1.8GB Flash, SATA, 1x PCI Express x1	MSC Q7-US15W-FD-015

## Accessories

Order Number	Description	Reference
	<b>Cooling</b>	
1050905	Heat spreader	MSC Q7-US15W-HSP-001
1053769	Heat rail	MSC Q7-XXX-01 HTR-001
	<b>Carrier Boards</b>	
39028	Qseven embedded platform, 10-28V input voltage, RJ45 connector with LED for LAN, Dual SATA connector, SD card holder, 5 x USB (2 x external), mini PCI Express socket, battery, VGA output HD audio codec, RS232 D-Sub9, touch screen controller	MSC Q7-MB-EP3-001
39698	Power supply Unit with connector for Q7-MB-EPx baseboards	MSC Q7-MB-EP-PSU1
	<b>SSD</b>	
1086583	40GB Intel SSD; 2,5" MLC; KIT incl. frame & cable	SSDSA2CT040G3K5

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