

Product Sheet



Development Tool

Industrial Reference Platform



Hpe®_IRP is an abbreviation for Hardware prototyping and emulation (Hpe) to help engineers in the development of FPGA hardware in connection with a x86 CPU platform.

The industrial reference platform is using a Qseven™ CPU module from MSC to quickly combine custom hardware in the FPGA with a standard **Intel® Atom™** design. Furthermore, the Hpe®_IRP includes a OSADL (Open Source Automation Development Lab) Linux and CoDeSys, a IEC-61131 software development system from 3S-Smart Software Solutions GmbH for evaluation.

The **MSC Q7-US15W** is an ideal platform to develop, prototype and produce systems which need be compact, passively cooled and possibly mobile.

The **Altera® Arria® Series transceiver FPGA** contains the Design-Under-Development and is easily programmed with a complete set of tools to assist the designer during the design process.

It is complemented by the **Gleichmann Research Toolset Hpe®_desk**, a GUI which supports the tools like clock factory, JTAG, AMBA IP manager or the SEmulator®, a tool to accelerate the simulation and debugging.

To help designers in the integration and development of their custom baseboard, all drawings are part of the development kit and free to be reused. They are accompanied by demo examples, FPGA IP's and drivers.

The same is true for the OSADL Linux distribution and the evaluation copy of the **CoDeSys IEC 61131** run-time environment. After a free period, the tool may be licensed to use all the investment during the evaluation period.

MSC can also offer complete display kits in any size including touch screen solutions, SSD storage devices and BIOS adaptations on the MSC Qseven module of choice.

Features

- Intel Atom Z530, 1.6GHz CPU on Qseven™ module
- 1 GB DDR2 main memory
- SATA via PCIe on module
- One SATA HDD with OSADL Linux pre-installed
- Gigabit Ethernet via PCIe on module
- DVI-D interface or internal LVDS+backlight kit
- Four USB 2.0 interfaces, three on external connector
- SD Card socket
- 2x20 char. LCD interface for information/debugging
- 24VDC power supply
- Altera Arria Series FPGA Board
 - Industrial Ethernet / Fieldbus Protocols (e.g. CAN/CANopen, Profibus, Profinet, EtherCAT)
 - Eight In / Eight Out with opto isolation, 2x Eight I/O
 - Four 12 bit A/D and D/A converter
 - Two RS-485, two RS-232 interfaces
 - Two CAN interfaces, two Gigabit Ethernet interfaces
 - Clock factory and RESET control
 - Altera USB-Blaster™
- Two Hpe_child extension connectors for user extension

Product description	Order numbers
Hpe_IRP system for development and evaluation including pre-installed Linux on HDD	MSC HPE-IRP

Technical Data – MSC Hpe®_IRP

Qseven CPU Module

Module: Intel Atom Z530 processor, 1.6GHz

Characteristics: 1GB DDR2 memory, 8x USB 2.0, 2x SATA-2, 10/100/1000 Base-TX Ethernet, PCI Express x1

Altera Arria Series FPGA

FPGA: Altera EP1AGX90E-F1152

HMI Display: 2 x 20 char. LCD display, 8 LED's

GPIO: 8 inputs, 8 outputs, opto-isolated, 16 I/O on rear panel, 5 push buttons, 4 DIP switches

Clocks: Programmable clock factory

Semulator I/F: Socket for high speed connection (2.5G Bit/s) between PC and FPGA

Physical Interfaces

Ethernet: One RJ45 for GbE (Qseven), Two RJ45 for GbE (FPG)

USB: Altera USB-Blaster support

Serial I/O: Two 9pin D-Sub for CAN fieldbus, Two 9pin D-Sub for RS485 fieldbus, Two 9pin D-Sub, RS232 (4wire)

Video Storage: DVI-D Interface (Qseven), USB 2.0 and SD-Card access on front, 250GB HDD for OSADL Linux

I/O: Cypress PSoC®, Mixed-Signal-Array, Four analog inputs, Four analog outputs, Configurable analog blocks (continuous time, switched capacitor)

Development / Debugs Tools

Hpe®_desk: Toolset for FPGA based developments include Clock factory, Hpe JTAG, Hpe®_AIM, SEmulator® with associated functions. Req. activation on <http://www.ge-research.com/updates.php>, Quartus® II FPGA Design Software; download available from www.altera.com

Software Package

Operating System: OSADL Linux

Evaluation SW activation after: CoDeSys IEC 61131 software run-time system, evaluation required www.3s-software.com

Power Supply

Power: 24 VDC input, external PSU 110/230VAC included

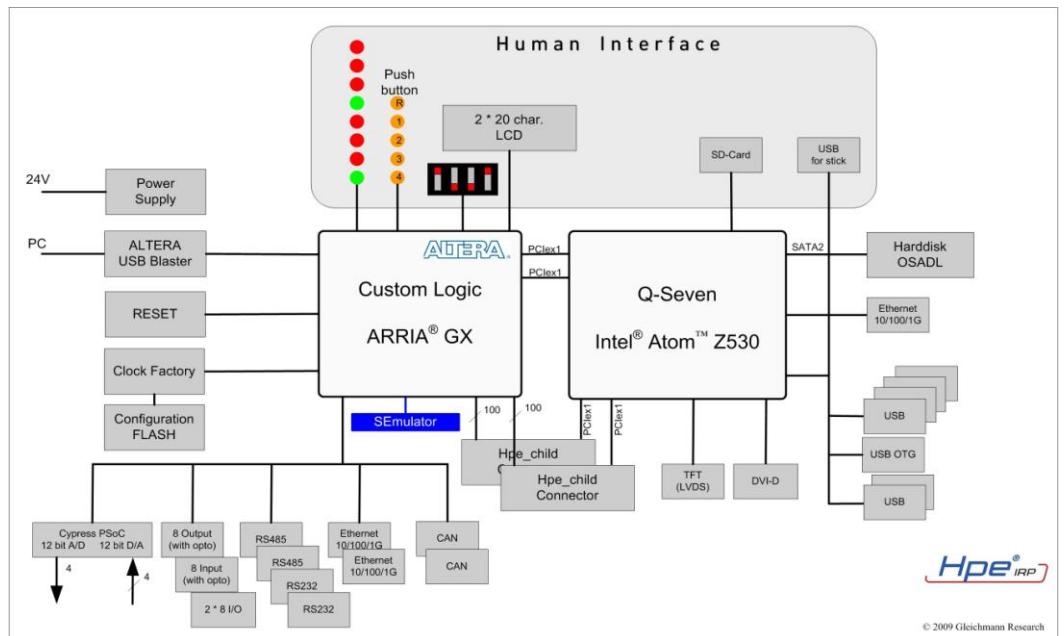
Environment

Ambient Temperature: 0° ... +35° C operating, -25° ... 85° C storage

Humidity: 20 ... 80% operating, 5 ... 95% storage (non condensing)

Mechanical

Dimensions: 292 mm x 74mm x 199 mm, (LxWxH)



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