HyperMAX –
Integrated, High Performance
and Innovative MAX10 FPGA Development Board
HyperMAX is a development board for the ALTERA MAX10 FPGA family and it demonstrates unique new features like:

- **MAX10 FPGA series**: a very integrated (configuration / user memory, ADCs) low cost family associated with a wide device derivatives range, compatible with the NIOS® II versatile embedded processor and transforming MAX10 in a flexible, customisable microcontroller.

- **Hyperbus™ memories** (HyperRAM and HyperFlash™) using a reduced pin count interface, optimizing board space but maintaining high performances level.

- **USB type C connectors** showing easy to use and compact form factor.

- **On board security** chip for best in class IP protection, secure authentication.

Apart from being highly performant, very integrated and secured, HyperMAX is also a flexible and is the choice to prototype a more complex / complete system by providing:

- **Various connectivity** options (NFC dual interface memory, CAN, optical or copper fast Ethernet, USB to UART).

- **Expansion features** (PMOD, ARDUINO and proprietary).

- **Self-sufficient development tool** (debug / programming USB integrated interface, USB powered, USB to UART interface...).
BOARD FEATURES

FPGA Subsystem
- ALTERA MAX10 10M25DAF256C7G
  - 25 K logic elements
  - 675 kbit RAM
  - 55 multiplier
  - 4 PLLs
  - 2 ADCs with 16 inputs
  - Temperature sensing diode
  - Dual configuration Flash (32 to 400kbit user flash)
  - ALTERA EP53A8LQI DCDC modules providing 1.2 v, 1.8 v, 2.5 v and 3.3 v rails
  - Embedded ALTERA USB-Blaster II for MAX10 programming / debugging
  - Cypress 512Mbit HyperFlash™ Flash memory
  - ISSI 64Mbit HyperRAM™ DRAM memory
  - IDT Versaclock V clock generation

Connectivity
- Broadcom BCM5221 10/100 Ethernet PHY with either copper or optical options (AVAGO AFBR-5972 Fast Ethernet over POF)
- NXP NT3H1101 NFC NTAG I2C memory with 1 kbit EEPROM
- CAN Transceiver
- Cypress USB to UART bridge with USB type C connector

Security
- NXP A7001 Secure authentication microcontroller

Expansion Features
- Arduino pinout associated with a proprietary double row allowing EBV MAREN daughter board (www.ebv.com/maren) compatibility; enabling various sensors, Bluetooth Low Energy connectivity and extension capabilities like WIFI, SIGFOX connectivity
- 2 PMODs headers (2*6 pins) to connect Analog Devices PMODs compatible boards
- Extension connector (46 GPIOs, CAN, 4 ADC input channels, 2 clock outputs)

User Interaction
- 2 push buttons and 2 DIP switches
- 8 single color LEDs and RGB LEDs

DELIVERABLES
- HyperMAX board
- USB type C– type A cable
- Demonstration project including EBV QSYS components for HyperRAM and HyperFlash memories and demonstrating many board features, expansion capabilities
- Training material to become familiar with tools, NIOS® II and many more
- User manual, design files

More information: www.ebv.com/hypermax