



MPE-V01

Multi Purpose Equipment for Timing Application

The **MPE-V01** consist of a mainboard in which is possible to plug up to 5 expansion cards, depending of your needs. It comes in two different version: 19" chassis and ETSI compatible.

When hosted in the 19" chassis it is provided with keypad, display and status LEDs for local management. Two hot replaceable PSU (AC or DC) are always presents as well as 2 GbE LAN interfaces for remote management, NTP Server and PTP IEEE 1588 v2 Grandmaster clock.

On the mainboard, in the main section, it's possible to install up to two OCXO (Rubidium as option) and two GNSS receiver (GPS or GLONASS). In order to increase availability and reliability of the system all internal power buses are duplicated. The expansion section it's composed by 5 expansion slots which can host, in any configuration (the unit is capable of automatic inventory), the following modules:

EXP-LPN

expansion module able to provide 4 isolated (80 dB) 10 MHz low-noise outputs. The module include an OCXO which permits to maintain outputs active (in holdover) in case of failure of the mainboard OCXOs. Outputs have BNC connectors. Output level is 13 dBm over 50 Ω .

EXP-10M

expansion module able to provide 4 isolated (80dB) 10 MHz outputs (no low-noise). Connectors BNC, output level 13 dBm.

EXP-IB-AM

It is able to provide 4 isolated IRIG X AM outputs with BNC connectors.

EXP-IB-DC

It is able to provide 4 isolated IRIG X DC outputs with BNC connectors.

EXP-PPS

It is able to provide 4 isolated PPS outputs via BNC connectors. Output level: TTL/5Vpp – 50 Ω .

EXP-ETH

It is able to provide 2 GbE interfaces and 2 SFP optical ports for NTP/PTP/SyncE. This option can be configured as master or slave. The module can be equipped with its own OCXO.

EXP-GNSS

The module it's hot replaceable. When present it excludes the on-board GNSS module if already present on the unit. The module can be equipped with its own OCXO.

EXP-TIME

It is able to provide 4 I/O configurable as: E1, ToD, PPS.

EXP-MRI

multi-reference input module. It has 4 auto sensing input (time and / or frequency reference signals). These incoming signals synchronize the local oscillator of the system. This module it has change-over function.

Key features

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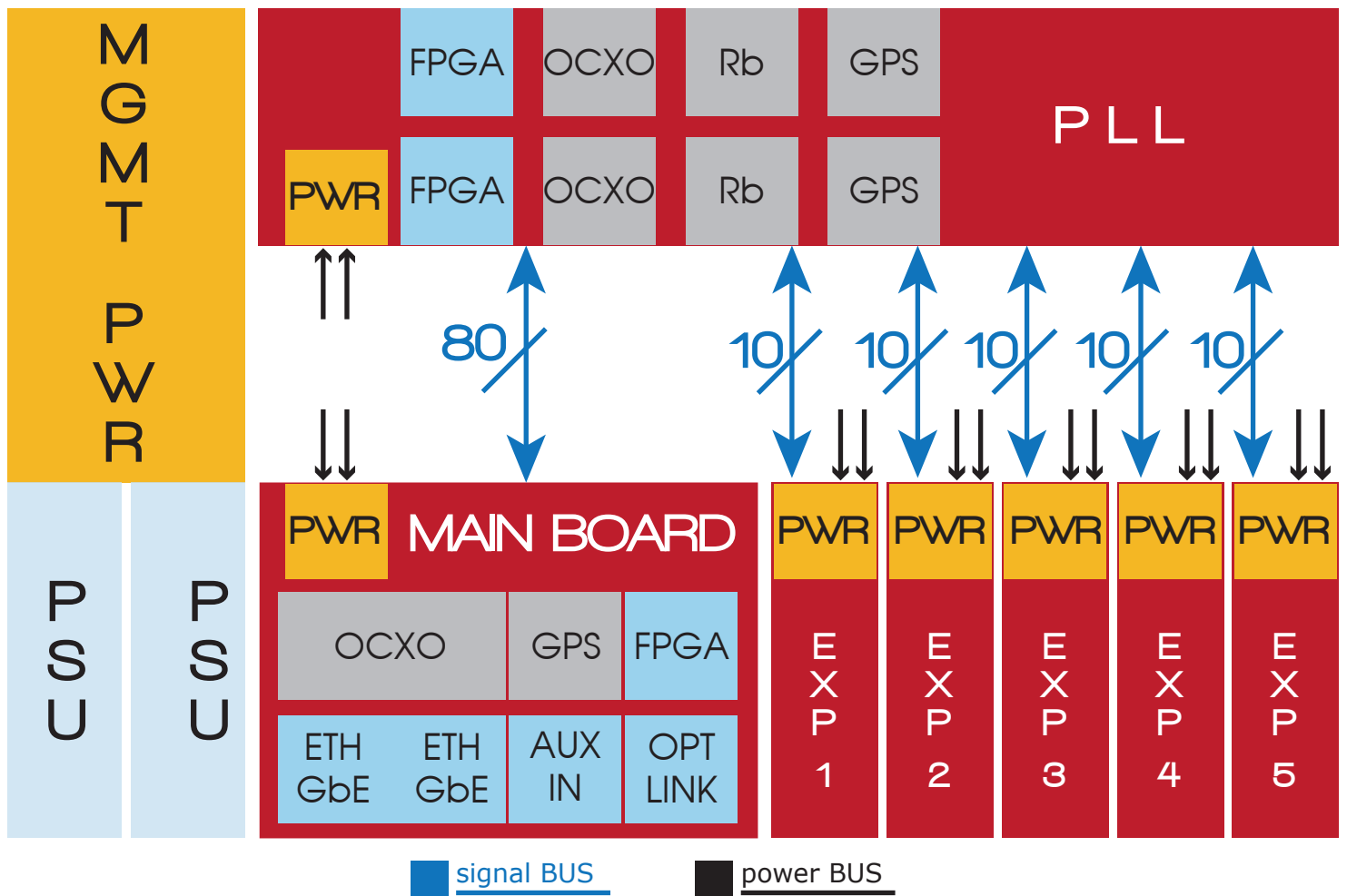
- ARM Cortex A9 @ 667 MHz Dual Core
- 512 MB DDR3
- Linux 2.6 operative System
- 2x GbE Network Interface via RJ45
- 2x SFP 2.5 Gbps
- Support up to 500 clients per port for IEEE1588v2
- Support up to 10,000 NTP requests per second (per Ethernet port)
- Single or dual integrated GNSS receiver
- Single or dual internal High Stability OCXO (Rubidium as option)
- IEEE1588v2 and SyncE compliant
- Multi reference inputs
- NTP Time Server
- Modular architecture (5 slots that can be filled with several expansion cards)
- Dual hot replaceable PSU



*MPE-V01 back panel.
The EXP-PPS module is plugged inside
and ready to be used.*



MPE-V01 back panel with EXP-PPS module

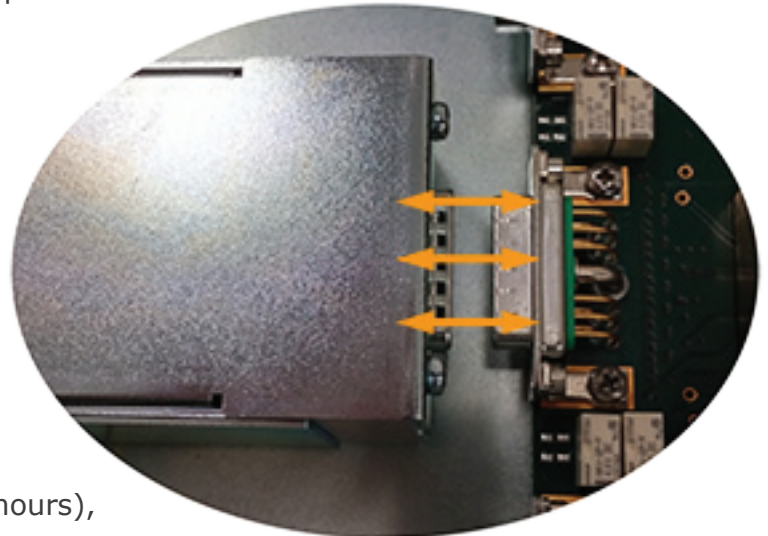


Mainboard MPE-V01

Local management: display, keypad and serial port on 19" subrack.
N° of Interfaces: 2 electrical +1 optical,
Interface type: 10/100/1000 (electrical) + GbE (optical) for: NTP Server,
PTP/IEEE 1588 v2 Grandmaster clock, web interface and SNMP.
Auxiliary Input: external frequency reference (10 MHz, 2.048 MHz, ...)
N° of expansion slots: 5,
Integrated GPS: (as option),
Redundant Internal Power Bus,
Local Oscillator: OCXO (Rubidium as option),
Serial Interface: RS232 via DB9 connector,
Power Supply: Dual redundant power supply hot swappable (AC: 85/265 - DC:12/48)
Mechanical format: 19" subrack or ETSI compatible.

EXP-LPN

N° of outputs: 4,
Connector type: BNC female,
Signal Type: 10 MHz Sine,
Output level: +13 dBm,
Phase noise: -120 dBc @ 10 Hz,
-145 dBc @ 100 Hz,
-150 dBc @ 1 kHz,
-150 dBc @ floor noise,
Spurious: -80 dBc,
Harmonic: -40 dB,
Impedance: 50 Ω ,
Isolation: 80 dB,
Accuracy: when locked +/- 1E-12 (after 24 hours),
in holdover +/- 1E-10 days.



MPE-V01: zoom of the module's plug system

EXP-10M

N° of outputs: 4,
Connector type: BNC female,
Signal type: 10 MHz sine,
Output level: +13 dBm,
Impedance: 50 Ω ,
Isolation 80 dB,
Stability: when locked +/- 1E-12 (after 24 hours), in holdover +/- 1E-10 days.

EXP-IB-AM

N° of outputs: 4,
Connector type: BNC female,
Signal type: IRIG X 123 (Amplitude Modulated),
Impedance: 50 Ω ,
Isolation 80 dB.

EXP-IB-DC

N° of outputs: 4,
Connector type: BNC female,
Signal type: IRIG X 023 (DC level shift),
Level: TTL (5Vpp),
Impedance: 50 Ω ,
Isolation: 80 dB.

EXP-PPS

N° of outputs: 4,
Connector type: BNC female,
Signal type: PPS Pulse Per Second,
Level TTL (5Vpp),
Impedance: 50 Ω ,
Isolation: 80 dB,
Accuracy: <50 nsec.



MPE-V01: Dual Hot Replaceable PSU.

EXP-ETH

N° of Interfaces: 2 electrical + 2 optical,
Interface type: 10/100/1000 (electrical), GbE (optical),
Connector Type: RJ45 + SFP,
Supported protocols: NTP, SNMP, PTP (IEEE-1588v2), SyncE, HTTP, SYSLOG, SNMPv4, TIME
PTP output client capacity: up to 500 clients per port
NTP packet rate: 20.000 transactions per second
Sync Role: Master and Slave.

EXP-GPS

Receiver: 1,575.42 MHz – 12 Channels,
Tracking: 12 satellite correlation,
PPS Accuracy: < 50 nsec,
Acquisition time: 4 minutes,
Local oscillator: OCXO,
Stability when locked: +/- 1E-12 after 24 hours,
Antenna connector TNC.

EXP-TIME

N° of Input/Output: 4,
Connector Type: BNC Female.

EXP-MRI

N° of Input: 4,
Connector Type: BNC Female,
Reference type: autosensing between frequency reference, IRIG X AM, IRIG X DC, PPS,
Changover: via relays.