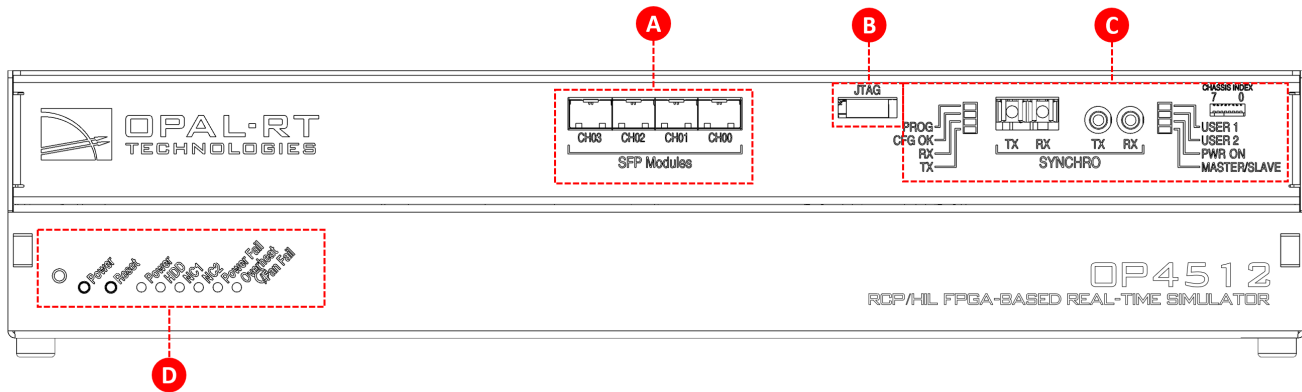


# OP4512 Front Interface



A. Small form-factor pluggable (SFP) module connectors provide four high-speed communication links between other FPGA simulators or third-party devices. Each socket controls one communication link. SFP transceivers and fiber-optic cables must be selected (and purchased separately) according to the type and speed of the communication protocol.

- **Note:** MuSE link requires specific SFP transceivers and optical fiber cables:
  - SFP: Avago AFBR-57R5APZ
  - Cable: LC-LC multimode 850 nm optical fiber

B. JTAG connector (for OPAL-RT technicians' use only).

- **Note:** JTAG connector is **highly sensitive to Electro Static Discharge (ESD)**. Always leave plastic plug in place when not in use. Wear an anti-static wrist strap at all times when using this connector.



C. Synchronization connectors status and user-configurable LEDs, dip switch and synchronization connectors.

- **LED Label**
  - **PROG/CFG OK:**
    - **CFG OK steady on green** and **PROG off** indicates the FPGA is **functioning normally**.
    - **CFG OK off** and **PROG steady on yellow** indicate the FPGA has stopped and is **no longer functioning**.
  - **RX:** **Green** when receiving synchronization.
  - **TX:** **Green** when transmitting synchronization.
  - **USER 1:** **Green** LED controlled. Configured by the user using Simulink blocks.
  - **USER 2:** **Green** LED controlled. Configured by the user using Simulink blocks.
  - **PWR ON:** **Green** indicates that the power is on.
  - **MASTER/SLAVE:**
    - **Green** indicates **MASTER mode**.
    - **Yellow** indicates **SLAVE mode**.
    - **Flashing green** and yellow indicates a **SAFE bitstream** in the FPGA
- **Dip switch**
  - **CHASSIS INDEX:** 8-pin DIP switch that allows users to set the device's network chassis index. It can be set from 00 to FF (in HEX) for a maximum of 256 addresses, default value = 00. Refer to [General Configuration](#) to copy this value in RT-LAB.
- **SYNCHRO Connectors Label**
  - **TX/RX Fiber-Optic Connectors** (square connectors): Compatible with OP4500, OP5607, OP7000 and OP7020. Synchronizes time steps between systems and includes high-speed FPGA pulses.
  - **TX/RX Copper Cable Connectors** (3.5 mm audio jack connectors): Legacy connectors compatible with all OPAL-RT products except OP4200.

D. Target computer monitoring interface. Two push buttons and six LED indicators:

- **Power Push Button:** Power on or shut down the target computer.
- **Reset Push Button:** Resets the target computer.
- **Power Green LED:** On indicates that the **unit is powered up**.
- **HDD Green LED:** On indicates that the **hard disk drive is operating**.
- **NIC1 Green LED:** On indicates that **network port 1** is in use.

- **NIC2 Green LED:** On indicates that **network port 2** is in use.
- **Power Fail Red LED:** On indicates a power fault.
- **Overheat/Fan Fail Red LED:** On indicates either that **unit has overheated** or a **fan fault**.