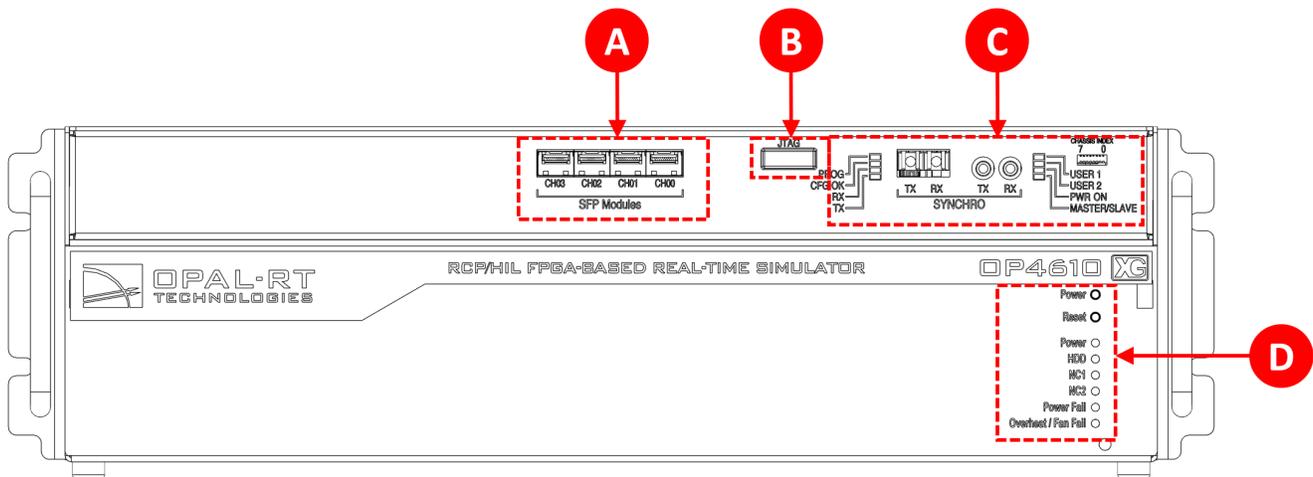# OP4610XG Front Interface

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 as the Chassis ID value in RT-LAB and HYPERSIM.
- **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**: Not used
- **NIC2**: Not used
- **Power Fail**: Not used
- **Overheat/Fan Fail**: Not used