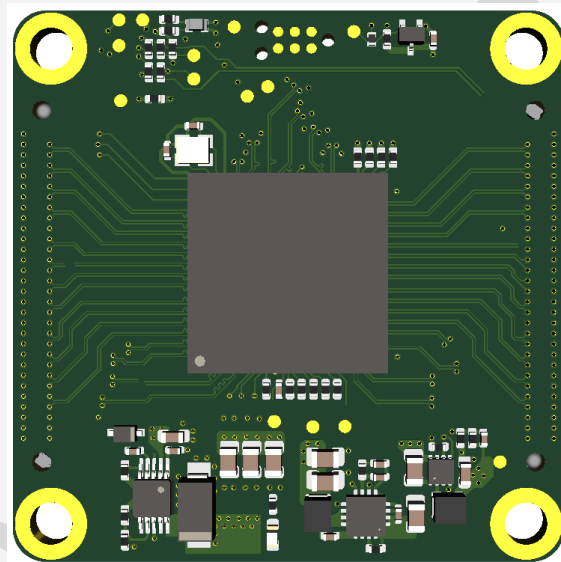




BB-UBI-A-1 • Modular Multi-port Switch

10G Capable Stackable Ethernet Switch

8 x 1G PHYs + 3 x 10G MACs





Introduction /

BotBlox is developing a compact, modular high-port count ethernet switch designed for use in automotive, subsea and aerospace applications. This switch aims to be a standard modular component that system integrators can use to easily add ethernet connectivity to their systems, without adding significant size or weight.

The switch will provide eight gigabit ethernet PHY ports and three 10 gigabit MAC ports on a stackable modular header, so that a system integrator can design a daughterboard with a specific combination of connectors. The 10 gigabit MAC ports also allow integration of optical SFP modules on the daughterboard.

This design is the culmination of hours of direct customer feedback, and hence aims to be a universal ethernet switch component that can be integrated directly into customer's systems.

To achieve the requirements of deep subsea as well as aerospace applications this design will have a focus on pressure tolerance, vibration tolerance and a wide ambient operating temperature. This will be independently certified via temperature (ambient and shock), vibration and pressure testing.

The modular nature of this board will allow a wide variety of daughterboards to be designed, with widely varying combinations of connectors and PHYs to support different ethernet interfaces. In this way, this design aims to provide a ubiquitous solution to high performance, compact, rugged ethernet; addressing the underserved needs of next generation embedded systems.



Key markets /

- Subsea/Deep Sea Systems
- Aerospace and Drones
- Bespoke Automotive
- Industrial Automation

General Technical Specifications /

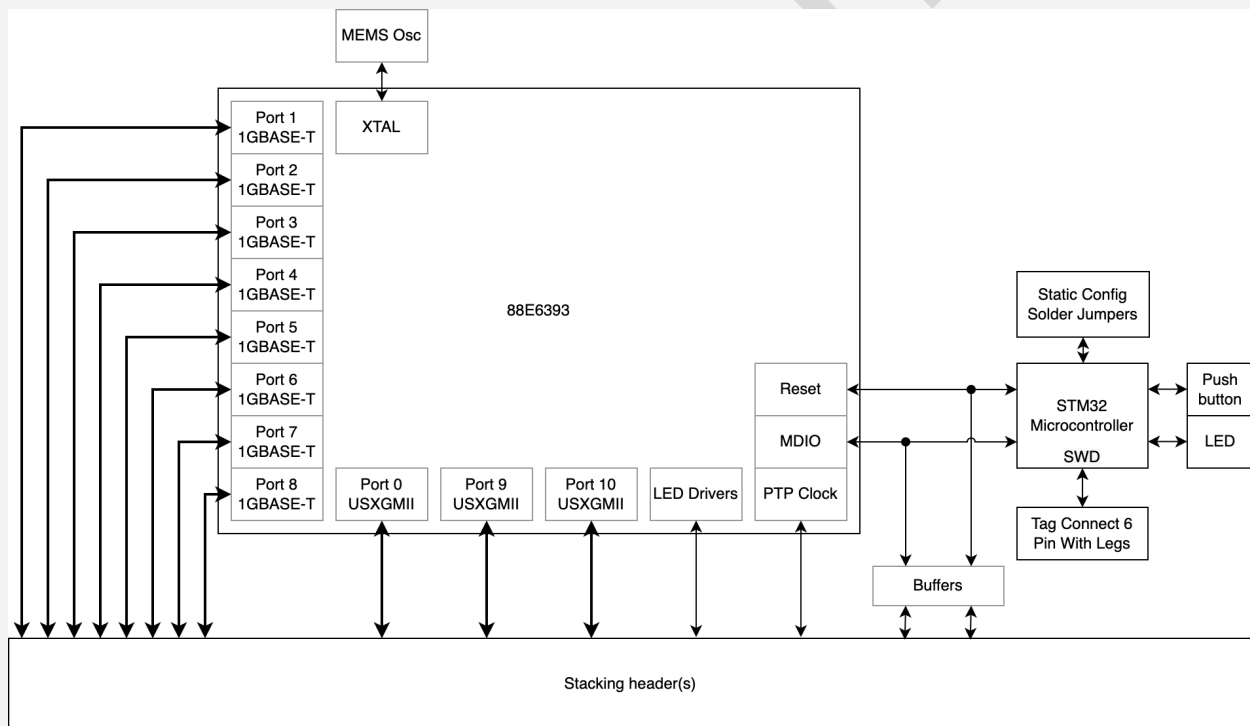
- Maximum size of 42mm x 42mm
- 5-60V input voltage range
- Pressure tolerance from 4.4PSI (30k ft) to 8702 PSI (600 BAR) 3km underwater
- Stackable interconnectivity (using Samtec [ERM8 series](#))
- 8 x 1000BASE-T ports
- 3 x 10G USXGMII ports for universal 10Gbps media connectivity
- -40°C to 85°C operating temperature range
- Plug-and-play functionality (no configuration necessary)
- Less than 15 watts power consumption
- No active cooling necessary
- Switch management functions including VLANs, Port Mirroring, QoS and PTP
- Three solder jumpers to support static configuration selection



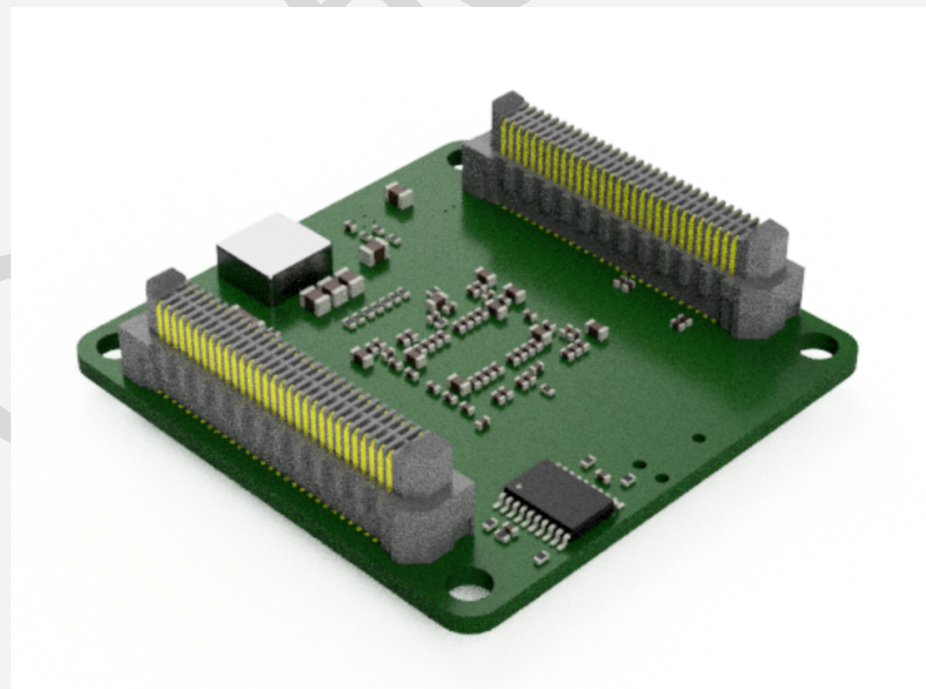
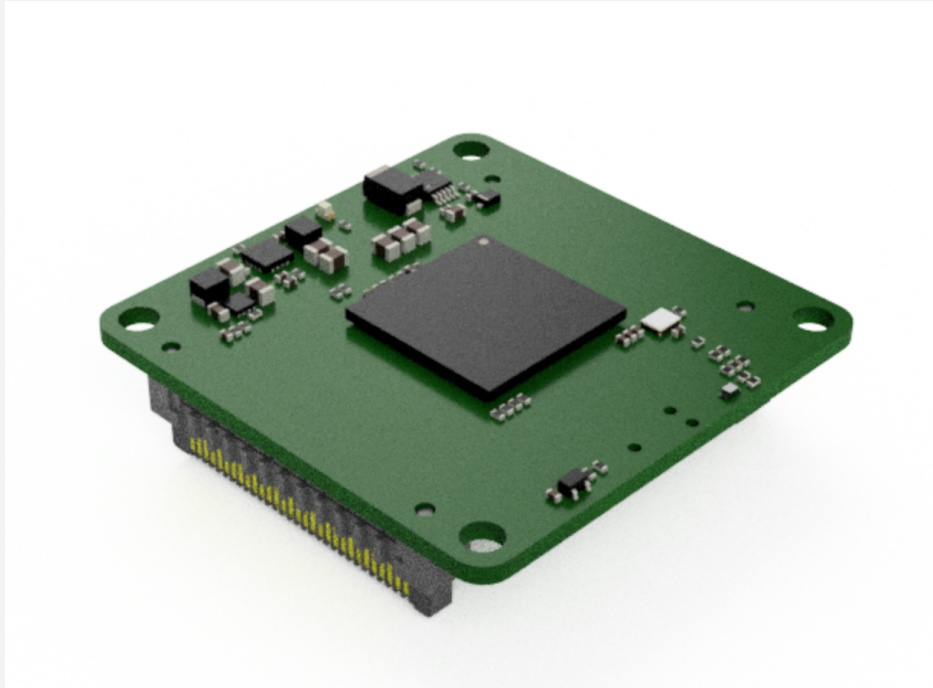
Standards Compliance /

- EN 55032 : Electromagnetic compatibility, Emissions, Class A (Industrial)
- EN 55035 : Electromagnetic compatibility, Immunity, Class A (Industrial)
- MIL-STD-810G-500.5 : Low Pressure (altitude)
- MIL-STD-810G-501.5 : High Temperature
- MIL-STD-810G-502.5 : Low Temperature
- MIL-STD-810G-503.5 : Temperature Shock
- MIL-STD-810G-507.5 : Humidity (*TBD*)
- MIL-STD-810G-514.6 : Vibration

Hardware System Diagram /



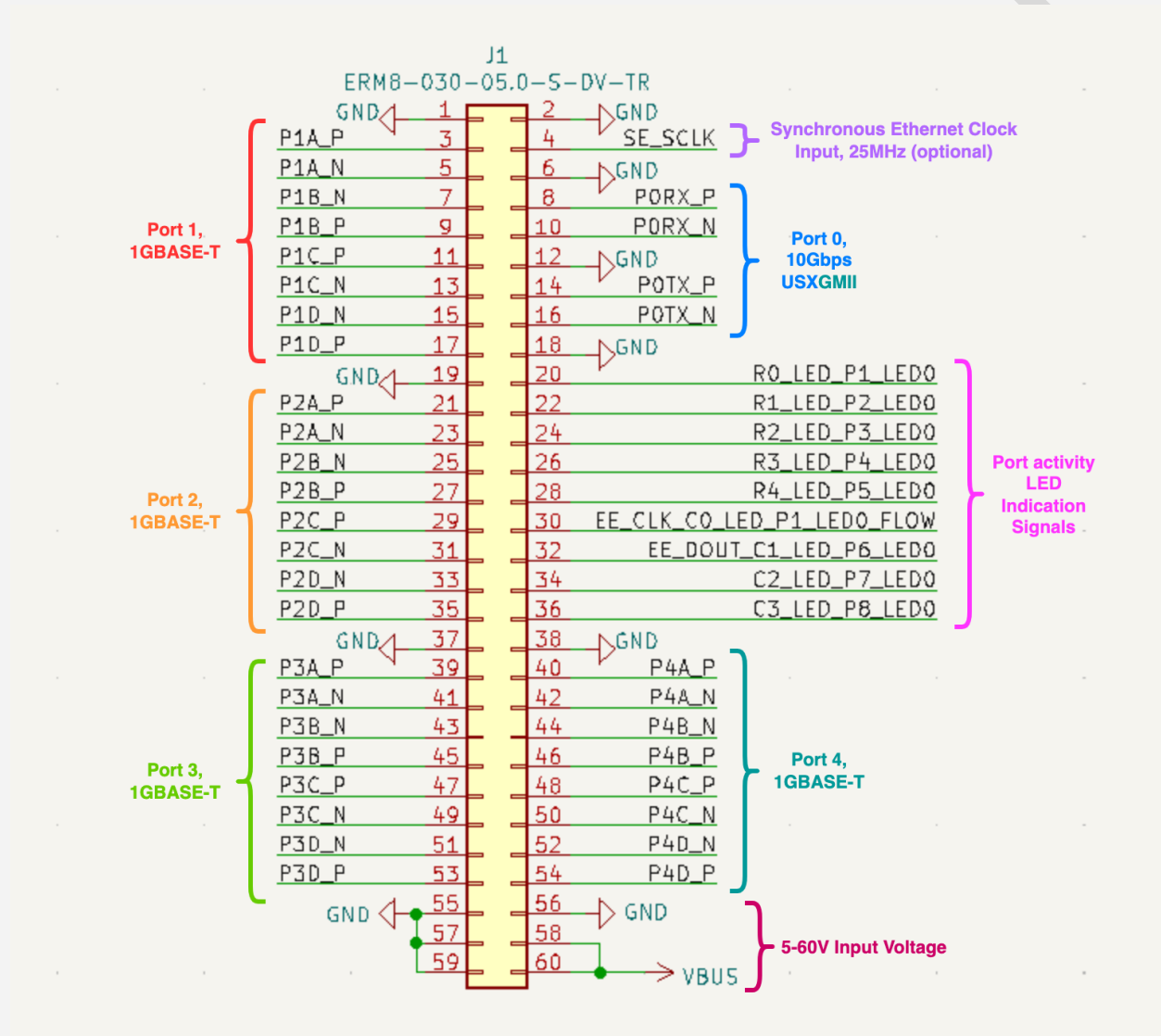
3D Views /

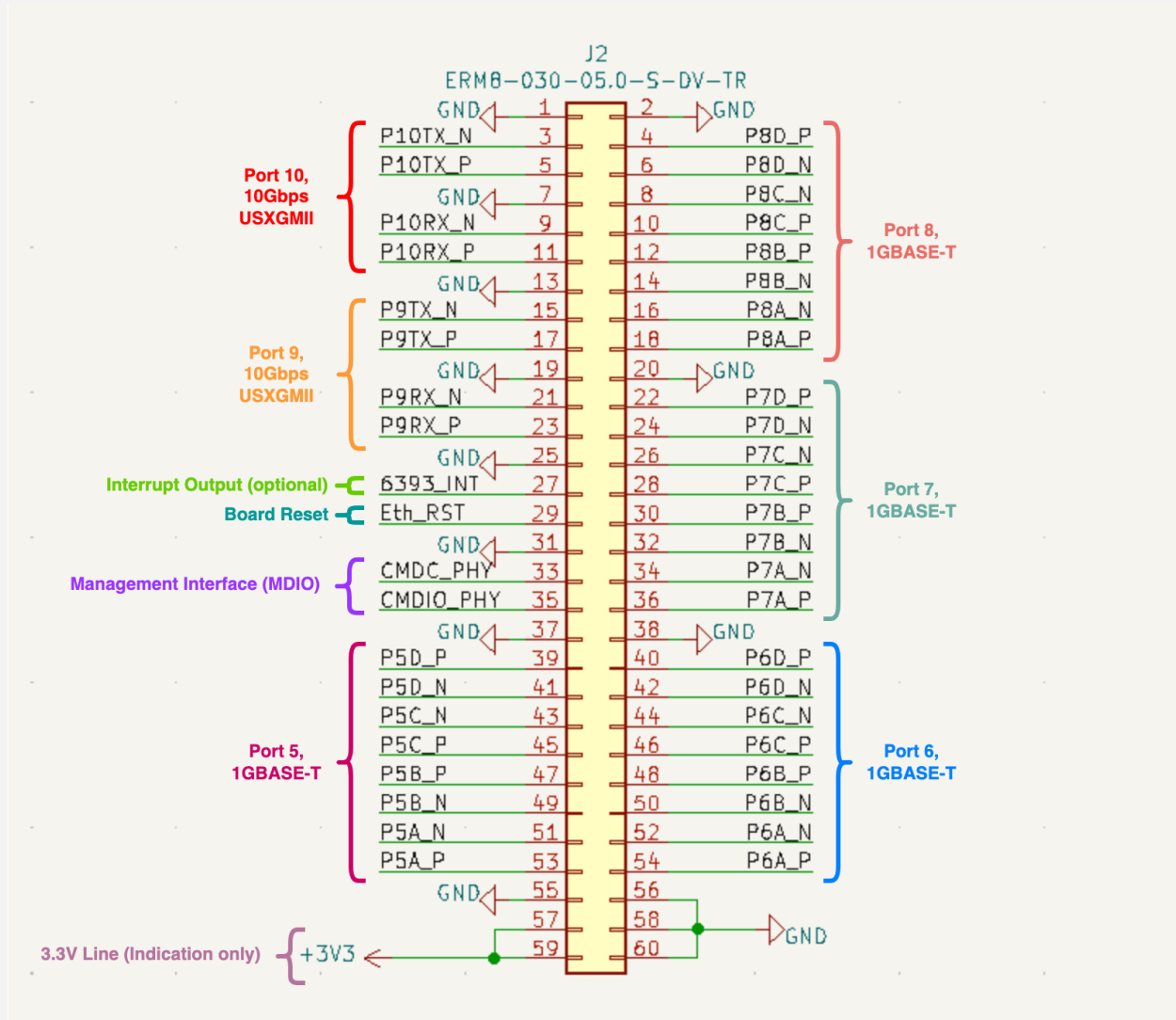


3D CAD /

Available at <https://grabcad.com/library/ubiswitch-revision-a-1>

Pinout /





Footprint /

