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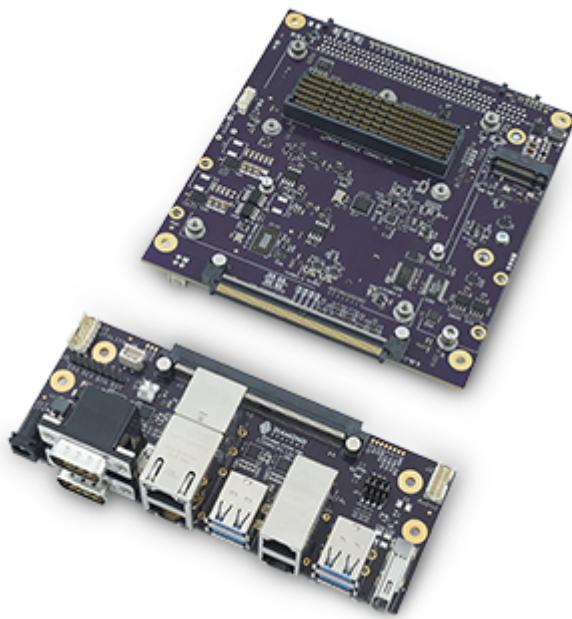# FORTEC
UNITED KINGDOM

Datasheet
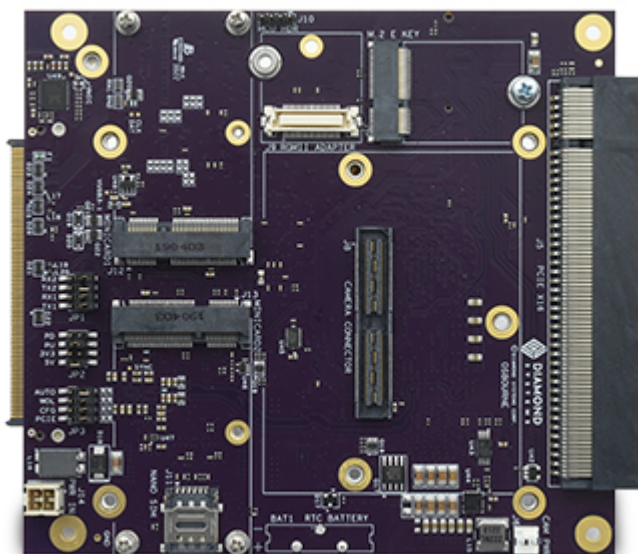
Diamond Systems

OSBOURNE

Carrier and Development Kit for NVIDIA Jetson AGX Orin

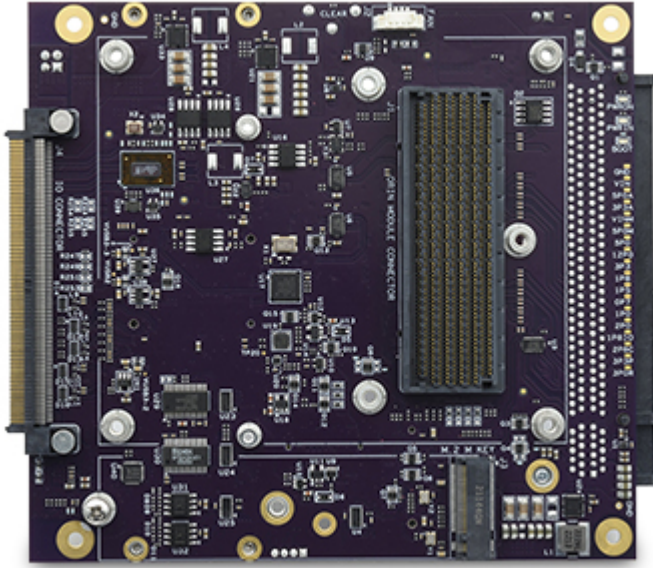# OSBOURNE Carrier and Development Kit for NVIDIA Jetson AGX Orin

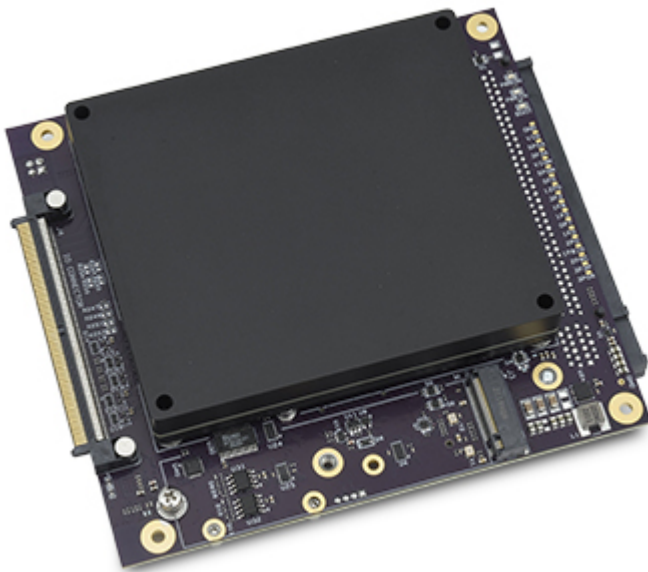**Osbourne carrier board with panel I/O accessory board**

FEATURES

3x USB 3.2 ports

4x USB 2.0 ports

1x 1G/2.5G/5G/10G Multi-Gigabit Ethernet port

1 10/100/1000Mbps Ethernet Port

4 x4 or 8 x2 lane CSI-2 camera Interface using industry-standard adapter socket

2x software configurable RS-232/422/485 ports with TTL option on one port

2x fixed RS-232 ports

1x HDMI 2.0a/b directly from Orin module

Audio I/O via ALC5640 CODEC

8 Digital I/O via I2C I/O expander

2x CAN 2.0 ports with non-isolated transceivers

2x mPCIe full-size sockets with PCIe and USB support

1 M.2 M Key (2280 or 2242) NVMe expansion slots (4 lane PCIe Gen 3)

1 M.2 E key 2230 socket

Dimensions 120 x 115mm / 4.7 x 4.5" (Carrier board only)

Power input 7-20VDC

Operating temperature -25 to +80C (same as Orin module)

Osbourne I/O expansion socket side

Osbourne Orin module installation side

Osbourne with AGX Orin module installed

Osbourne full kit with Orin module, fan sink, and commercial I/O adapter

Commercial I/O adapter

Osbourne is a versatile carrier board for the NVIDIA Jetson AGX Orin high-performance GPU module. It provides access to all I/O features of the Orin module and includes numerous sockets for I/O expansion. Osbourne has been designed to be used in almost any application ranging from commercial to industrial to airborne to rugged military use.
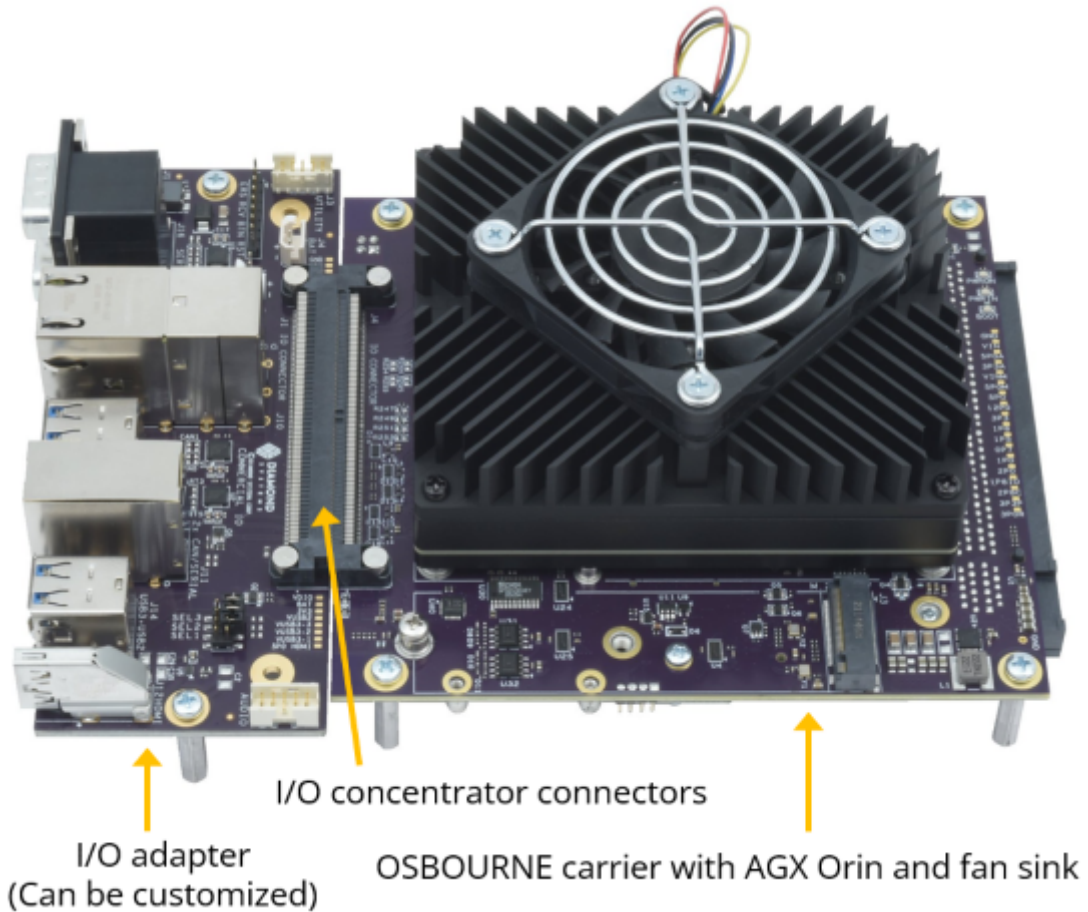
Key highlights of Osbourne include:

- Industry-standard camera adapter socket for use with a wide range of CSI, GMSL, and other cameras
- 10Gb Ethernet + 1GB Ethernet ports
- Wide temperature operation – matching the range of the Orin module
- Dual minicard sockets with PCIe and USB interfaces
- Dual M.2 sockets for flash memory (M key 2242/2280) and network connectivity (E key 2230)
- I/O concentrator connector enables use with standard and custom I/O breakout boards

Osbourne is available as a carrier board alone or with an Orin module and fan sink installed and ready for use. A Linux OS based on Nvidia L4T and customized to support all I/O on Osbourne is
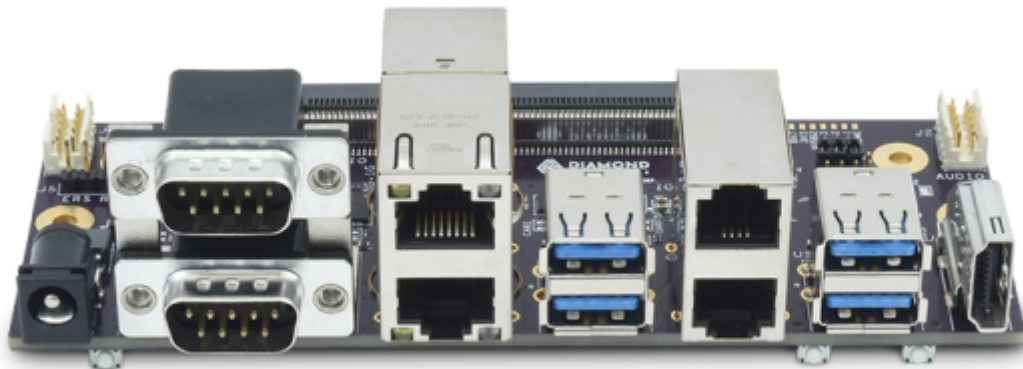
available for free download.

◆ Flexible I/O Connector Design

All I/O on Osbourne is accessed through a single high-speed, high-density connector along the board edge. This decouples the board design from any specific I/O connector arrangement and frees you to select whatever I/O connector scheme you want. Standard connector boards are available for typical use cases, including a panel-mount connector board for installation in an enclosure and a breakout board for use with cables.

I/O concentrator connectors

I/O adapter
(Can be customized)

OSBOURNE carrier with AGX Orin and fan sink

◆ Panel I/O Board

The Panel I/O board provides the ability to install Osbourne directly into an enclosure without the use of cables. All I/O is provided on a series of commercial-style connectors designed to be mounted in an enclosure front panel.
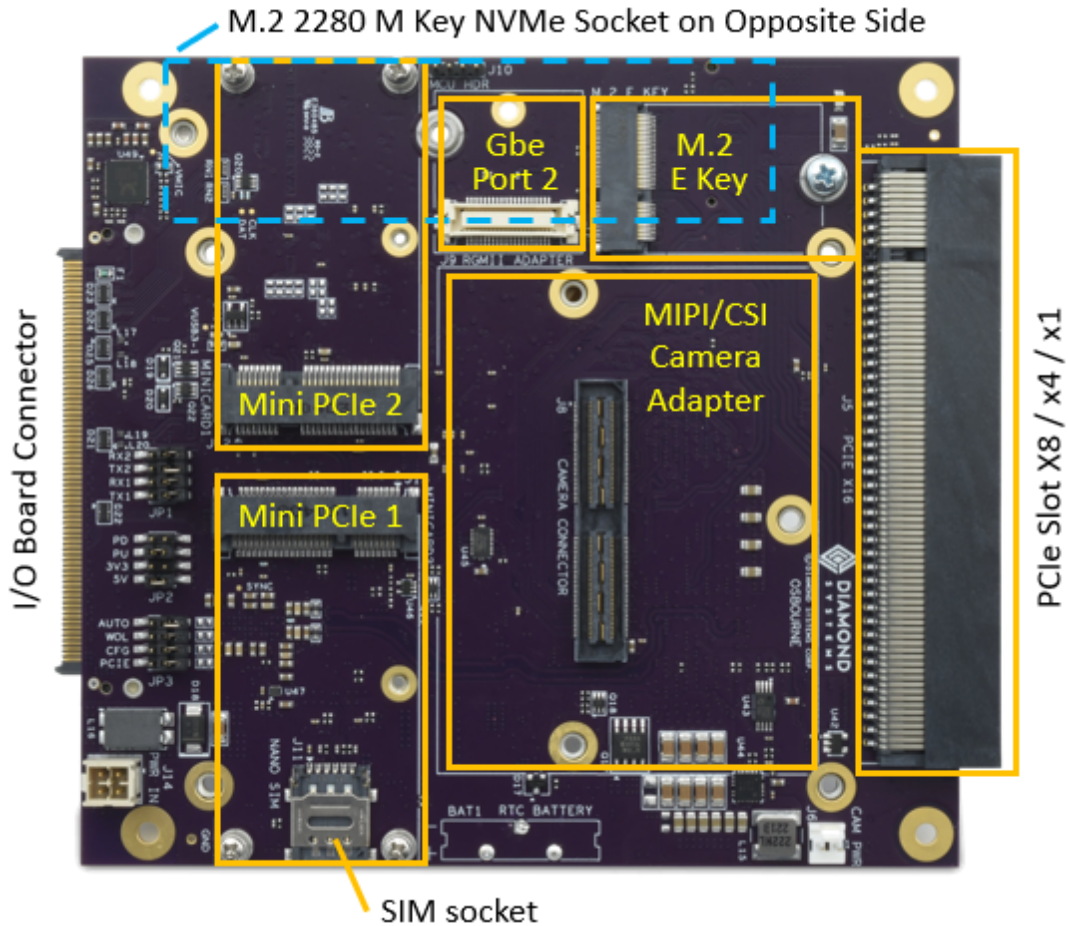

Panel I/O boards can also be designed with right-angle orientation. Below is an example of a connector board with MIL-DTL-38999 connectors for a rugged system using Orin.

◈ I/O Expansion

Osbourne includes dual PCIe minicard sockets with both PCIe and USB interfaces, supporting a wide range of I/O and communications/networking modules from Diamond as well as third party vendors. It includes an M.2 E key socket for installation of WiFi and other networking modules. Also a PCIe slot connector enables attachment of standard desktop-style PCIe slot I/O boards with PCIe x8 / x4 / x1 connection.
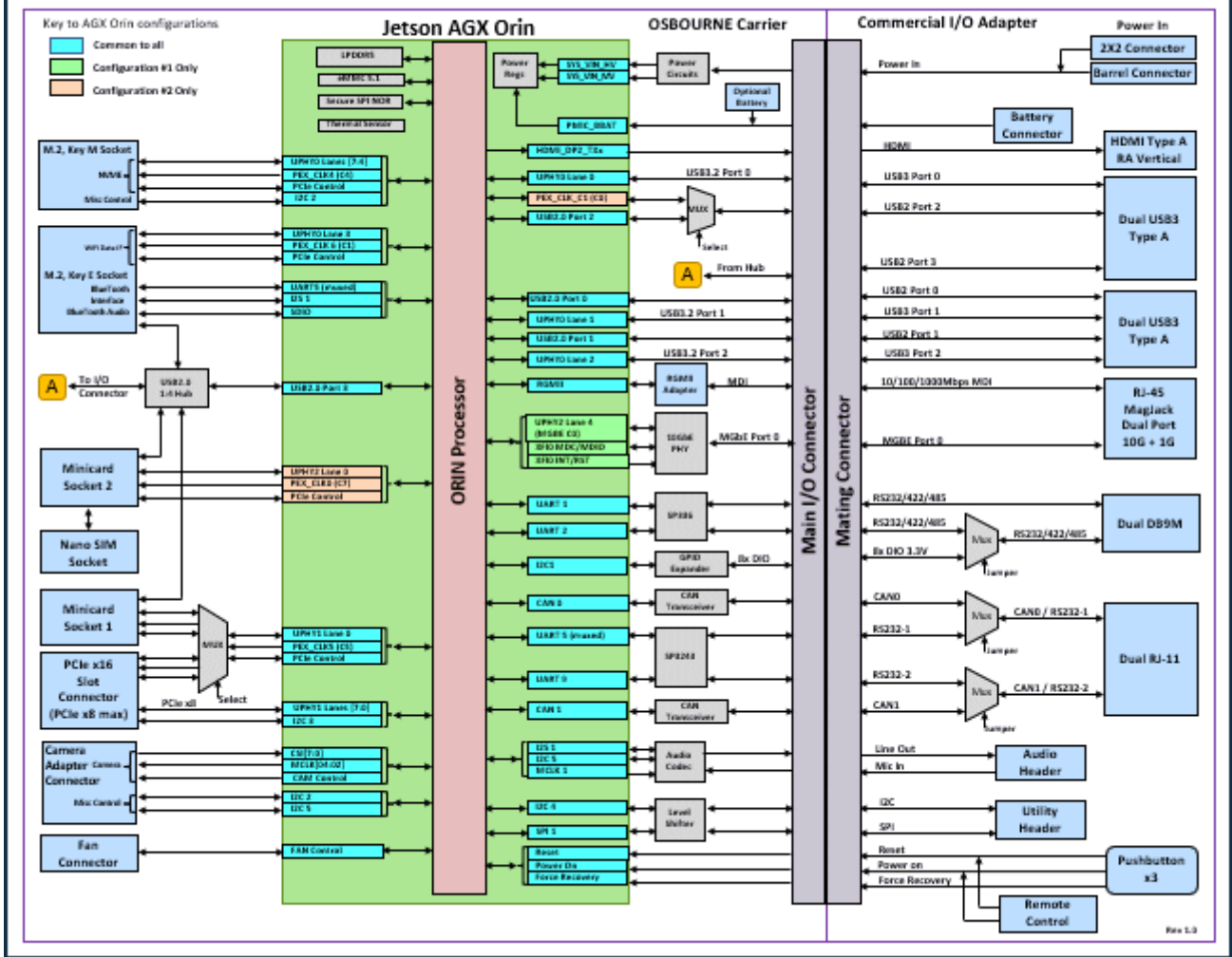
Mass storage is provided with an M.2 2242/2280 NVME socket and a Micro-SD card socket.

◈ Block Diagram

Osbourne makes available all the I/O of the Orin module in UPHY configuration 1, so application developers have access to all features without limitation.

Osbourne with Commercial I/O Adapter Block Diagram

Ordering Information

Models and Accessories

OSBOURNE

Available Models:

Model	Description	Status
OSB-BB01	Osbourne carrier board for NVIDIA Jetson AGX Orin	Available
OSB-ASY-01	Osbourne Carrier Board With OSB-PNL01 I/O Board Integrated Assembly	Available
OSB-ASY-0132-E1F0	Osbourne carrier board with Orin 32GB module installed, OS loaded, fan sink	Available
OSB-ASY-0132-E1F1	Osbourne carrier board with Orin 32GB module installed, OS loaded, fan sink, 1TB NVMe SSD	Available
OSB-ASY-0164-E1F1	Osbourne carrier board with Orin 64GB module installed, OS loaded, fan sink, 1TB NVMe SSD	Available
OSB-ASY-0164XT-E1F1	Osbourne carrier board with Orin 64GB Industrial module installed, OS loaded, fan sink, 1TB NVMe SSD	Available
OSB-PNL01	Osbourne commercial I/O adapter, jumper configured ports	Available
OSB-PNLR02	Osbourne Rugged Panel I/O Board with MIL-DTL-38999 and SJT Connectors; with I/O expansion support	Coming Soon
OSB-PNLR02A	Osbourne Rugged Panel I/O Board with MIL-DTL-38999 and SJT Connectors; no I/O expansion support	Coming Soon

Please login or signup for an online quote request.

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