



## Overview

Elton™ utilizes the NVIDIA® Jetson™ AGX Xavier™ embedded computer module to deliver unmatched performance for AI, machine learning, image processing, and other compute-intensive tasks.

Elton provides numerous sockets for I/O expansion. An industry-standard camera module socket supports the attachment of up to 8 CSI cameras (up to 4 cameras with 4K resolution). An M.2 socket supports the use of PCIe x4 NVMe flash storage up to 256GB. An LTE module socket supports the use of NimbeLink SkyWire cellular modems, featuring a broad range of solutions with worldwide compatibility. Most notably, a full PCI/104-Express expansion socket enables the use of PCI-104 and PCIe/104 expansion modules with up to PCIe x8 bandwidth.

All I/O is provided on pin headers that are compatible with both common non-latching and rugged latching mating cables, making Elton ideal for applications in environments subject to high shock and vibration.

## Jetson AGX Xavier

The NVIDIA Jetson AGX Xavier is an embedded system-on-module that integrates an NVIDIA 8-core Carmel 64-bit ARM-8 CPU with a 512-core Volta GPU with Tensor Cores. It includes dual Deep Learning Accelerators, 16GB 256-bit LPDDR4 RAM with 137GB/s bandwidth, 16 lanes of PCIe, and 16 MIPI CSI-2 camera lanes.



## Features

### On-board features:

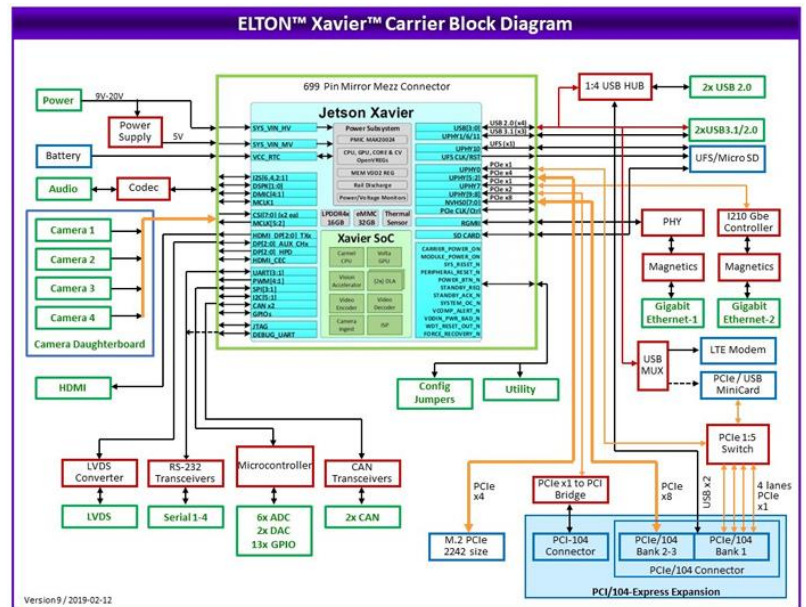
- ◆ 2x USB 3.1
- ◆ 2x USB 2.0
- ◆ 2x Gigabit Ethernet
- ◆ 1x HDMI
- ◆ 1x LVDS LCD
- ◆ 4x RS-232/422/485
- ◆ 2x CAN 1Mbps
- ◆ HD audio
- ◆ Data acquisition circuit:
  - 6 12-bit A/D, 0-3.3V input range, up to 1MSPS sampling rate
  - 2 12-bit D/A, 0-3.3V output range
  - 13 GPIO, 3.3V logic levels

### Socketed features:

- ◆ Camera module connector supports up to 8x 2-lane CSI cameras
- ◆ UFS / Micro SD flash socket
- ◆ M.2 PCIe x4 NVMe flash socket
- ◆ Socket for Nimbelink SkyWire LTE modems with global compatibilities and approvals
- ◆ PCI-104 Express expansion socket
  - PCI-104 connector for PCI bus
  - PCIe/104 Type 2 connector with 1x PCIe x8 and 4x PCIe x1

### Miscellaneous:

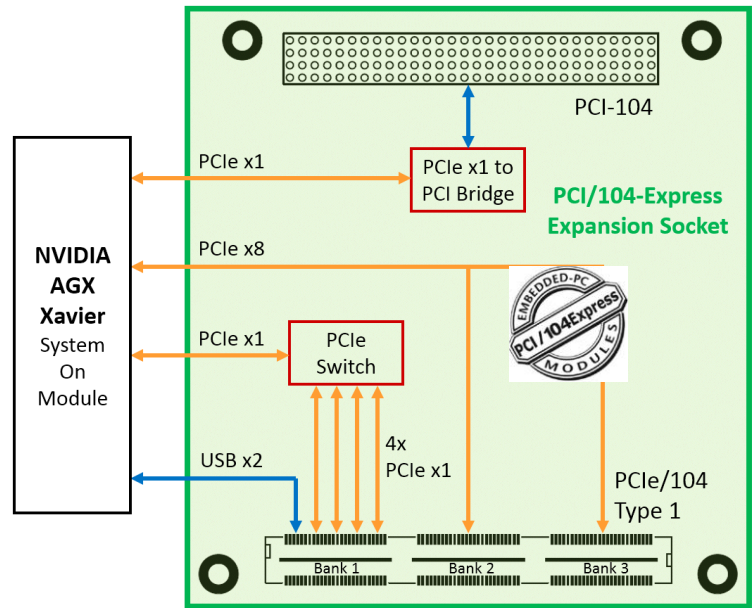
- ◆ Input voltage: 5-20VDC
- ◆ 4.00"H x 6.00W / 102 x 152mm
- ◆ -40 to +85°C operation
- ◆ Conduction cooling with bottom-mounted heat spreader



## NVIDIA meets PC/104

Unique among NVIDIA module carriers, Elton bridges the world of NVIDIA high performance computing and graphics capabilities and the world of PC/104 rugged systems. Elton is the first product to bring NVIDIA into the PC/104 ecosystem. The rugged PC/104 board-to-board connectors eliminate backplanes and create a proven reliable method for connecting compute engines and I/O boards together to create a compact, cost effective, and high performance system.

The PC/104 expansion socket on Elton provides support for PCI-104 (PCI), PCIe/104 type 2 (PCIe x8 lane), and PCIe/104 OneBank expansion modules (4 PCIe x1 lanes), enabling rapid creation of truly rugged, custom-configured, high performance, PCIe-based solutions using off-the-shelf I/O modules from a large number of manufacturers worldwide. Typical PCIe/104 I/O expansion includes 1G/10G Ethernet, video capture, and high-resolution video display.



## Data Acquisition

Elton contains a full-fledged analog and digital I/O circuit that provides control and monitoring of real-world events such as sensors, temperature controls, keypads & switches, and industrial processes. All features are supported by Diamond's built-in data acquisition driver software, featuring a C-language programming library with application demos plus an interactive GUI-based control program that offers real-time access and control.

Channel	A/D Code	Voltage(V)
0	2048	1.6492
1	4095	3.2999
2	0	0.0000
3	1024	0.8257
4	3000	2.4175
5	0	0.0000

Channel	Voltage(V)
12	1.800
13	3.300
14	5.000
15	12.000

## Ordering Information

- ELT-BB01-XT** Elton Carrier with PCIe/104 expansion
- ELT-BB02-XT** Elton Carrier without PCIe/104 expansion