

The Astra™ Machina™ Foundation Series evaluation kit enables easy and rapid prototyping for the Synaptics SL-Series of multi-modal AI-native embedded IoT processors. A modular design supports swappable compute modules on a common I/O board, with daughter cards for integrated Wi-Fi and Bluetooth connectivity, debug, and flexible I/O.

The evaluation system supports the full range of the Synaptics SL1600 series of SoCs including the SL1680, SL1640, and SL1620.

Pair this compute flexibility with a unified software experience, to optimally assess AI-enabled edge compute solutions for consumer, enterprise and industrial IoT system designs.

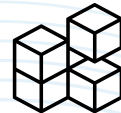
The Astra Machina evaluation systems are supported by an open, Yocto Linux distribution delivered as part of the Synaptics ESSDK, available on [Synaptics Astra GitHub](#). With the [Synaptics AI toolkit](#), users benefit from a feature-rich, robust, and open, edge AI platform designed for all stages of the AI journey from beginner to advanced.

Utilize industry-standard open-source libraries and frameworks such as GStreamer and V4L2 to create video and display pipelines. Leverage multi-TOPS Neural Processing Units (NPU) to securely run inferencing for a range of functions including object detection, classification, and segmentation. Work with AI-enabled audio algorithms for far-field voice, wake words, echo cancellation, noise reduction, and voice biometrics.

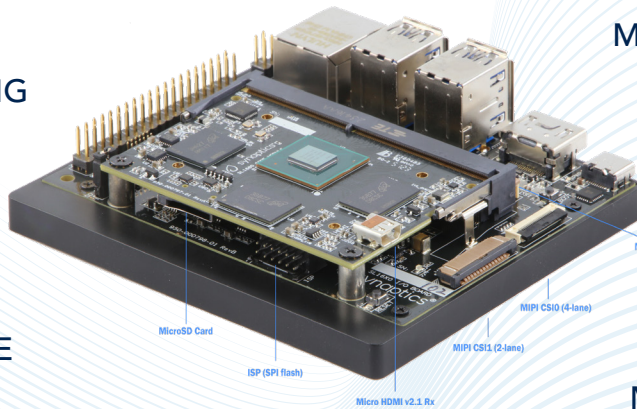


**EASY + FAST  
PROTOTYPING**

**MODULAR  
DESIGN**



**UNIFIED  
SOFTWARE  
EXPERIENCE**



**COMPREHENSIVE  
AI TOOLKIT**



**MATCHED  
WIRELESS**



### FEATURES

**Core Modules:\***

- ▶ Synaptics SL1680 / SL1640 / SL1620 SoCs
- ▶ Storage (eMMC 5.1), Memory (DRAM), PMIC, SD Card Slot
- ▶ HDMI Micro Rx interface
- ▶ Audio Input/Output

**Daughter card interface options:**

- ▶ MIPI DSI®, MIPI CSI-2®
- ▶ JTAG, 40-pin header
- ▶ 4-pin PoE+
- ▶ 4-pin connector

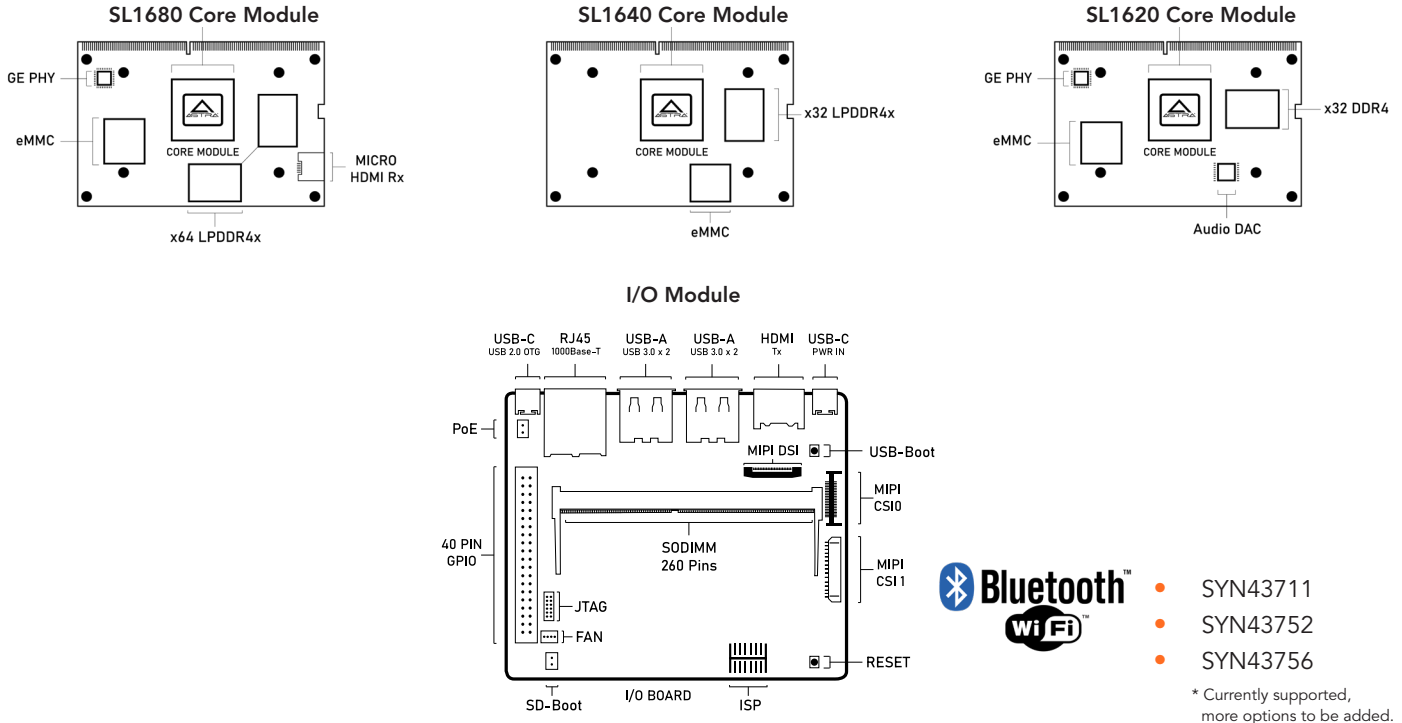
**I/O board:**

- ▶ HDMI Type-A Tx
- ▶ M.2 E-key 2230 slot for SDIO, PCIe®, UART
- ▶ USB 3.0 Type-A: 4 ports, host mode
- ▶ USB 2.0 Type-C: OTG host or peripheral mode
- ▶ Push buttons: USB-BOOT selection and system RESET
- ▶ 2pin Header: SD-BOOT selection

**Type-C power supply with 15V @ 1.8A**

\* Not all features available on all core modules, please refer to the respective Core Module User Guides.

### SYSTEM DIAGRAMS



### RESOURCES

For more information, please reference the following links:

- ▶ Synaptics Astra GitHub: <https://github.com/synaptics-astra>
- ▶ Synaptics AI Toolkit: <https://synaptics-synap.github.io/doc/v/3.0.0/>
- ▶ [Astra Machina SL1680 Developer Kit User Guide](#)
- ▶ [Astra Machina SL1640 Developer Kit User Guide](#)
- ▶ [Astra Machina SL1620 Developer Kit User Guide](#)

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