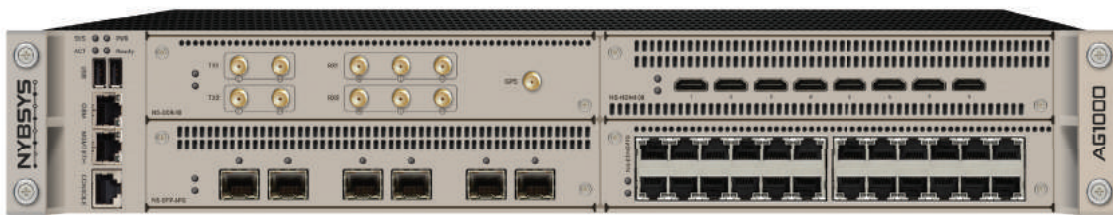


# AG1000

## The IoT Aggregator

### OVERVIEW

A lot of data has been generating by IoT sensors, collected by gateways needs AI based aggregators. AG1000 will fulfil the need for data aggregation at the edge. We explored and created a scalable array server, which contains 4 NVIDIA® Jetson™ TX2 modules which are then connected via Gigabit Ethernet fabric through 10G Uplink interface. The aggregator is a modular system which can support 4 front panel cards and one back panel additional computing and storage engine.



AG1000 Front View



AG1000 Back View

### SYSTEM FEATURES

The system is based on high speed PCIe express switch and connects different modules with it. It has on board ARM based computing module with 10 Gbps uplink and management interface. It also has a serial console port for on board BMC system access and configuration. OpenBMC designed by Facebook's openCompute project, has been implemented which has 256 Mb of Ram and 32 Mb of flash storage. It is a system on chip and secured.

The system can provide upto 8 Tera flops processing to enable super computer features at the edge to perform machine learning by applying TensorFlow.

Additional computing and storage is provided to manage any local storage requirement before sending central server for big data analytics.

### MODULES

There are four slots in the front panel which can current can take up to four different modules which are 24 port gigabit Ethernet module, 8 port Fiber optic module, 8 port HDMI module and high capacity software defined networking module.

At the back panel, an additional computing module can be added with additional two SSD disk drives.

**Ethernet Module:** 24 x Gigabit Ethernet / 1000BASE-T / IEEE 802.3ab switching module has been added in the system which can provide at least 24 other gateways to connect to each module. If all four front panel modules are being used as Ethernet port, the system will provide aggregation point for 96 gigabit Ethernet ports which can combine at least 960 IG100 gateways or 96 IG200 gateways.

**Fiber Module:** 8 port fiber optic ports are in one module. out of which 6 ports are SFP 1G and 2 ports are SFP + 10G ports. If all four ports are used as fiber, total 32 ports fiber can be added. Currently significant work has been in underway to add 40 Gb and 100 Gb interface. Mellanox EDR module is also under development.

**Software Defined Network:** Currently SDR module has been developed which supports 100kHz – 3.8GHz frequency range which supports 120 MHz RF bandwidth. This RF module can scan the network and apply machine learning for monitoring and detecting signals, decoding information and creating alarms if it finds any anomalies. FPGA based SDR can provide all three RATs (Radio Access Technologies), 2G, 3G and LTE frequency scanning features and used for fake BTS identification and mitigation. The system can be used for situational aware radar system and many other RF signal related use cases.

**Video Input Module:** There has been high demand of video analytics which includes live broadcasting monitoring. Our Video input module can detect all the live television feeds, provide voice synthesis including language translations. We also offer live sentiment analysis based on natural language processing based on this module.

**Computing Module:** An additional computing module can be connected at the back side of the AG1000 which is supports COM express type 6 module inside the module. Currently, the system supports 2 SATA ports as well as PCIe express slot for SSD drives, VGA port, COM port, console port, 2 Ethernet LAN and one management LAN with 2 USB port for connecting keyboard and mouse . The system also supports 10G Ethernet port which connects to the main board. Additional management Ethernet ports are also provided in the additional computing module

## ORDERING INFORMATION

Item	Description
AG1000-Main-CC-H	IoT Gateway Aggregator main controller unit and chassis
iG100-GW-P10	Internet of Things (IoT) Gateway, Professional Model
NS-ETH-241G	24 port Ethernet switch module for AG1000
NS-SFP-6G	6 port SFP module
NS-SDR-10	SDR module
NS-HDMI-08	Video Stream Input module

## FOR MORE INFORMATION

For more information about AG1000 products, please contact us at [sales@nybsys.com](mailto:sales@nybsys.com)