

BLADE//runner HARDWARE

BLADE//runner is arkona's product line of software applications and programmable acceleration cards which provide core infrastructure solutions for Tier-1 live broadcast productions.

AT300 - FPGA Acceleration Card

The AT300 is a modern FPGA Programmable Acceleration Card (PAC) powered by the Intel Stratix 10 MX FPGA which provides dual non-blocking native 100GE interfaces and high bandwidth memory (HBM).

The AT300 features a road-hardened design with interchangeable modular rear-plates which enables support for various media types such as SDI, MADI, WordClock and more. Cooling is front-to-back through dual built-in fans.

The AT300 is a great choice for hybrid applications where interfacing with legacy infrastructure is still required while still having plenty of capacity to in addition provide native IP media processing functions through its 2 x 100GE IP interfaces.



The arkona AT300 PAC as seen from the front

Revision: AUG23-1

FRAMES

BLADE//runner frames are available in 1, 2 and 3RU sizes that provide redundant power and optionally a centralized out-of-band management Gigabit Ethernet port (Electrical and Optical) that connects to all the PACs in the frame. Designed around a backplane free architecture where each PAC is independent it is possible to easily scale a BLADE//runner system across multiple frames and multiple locations where processing is placed at the most appropriate location to meet the demands of the user.

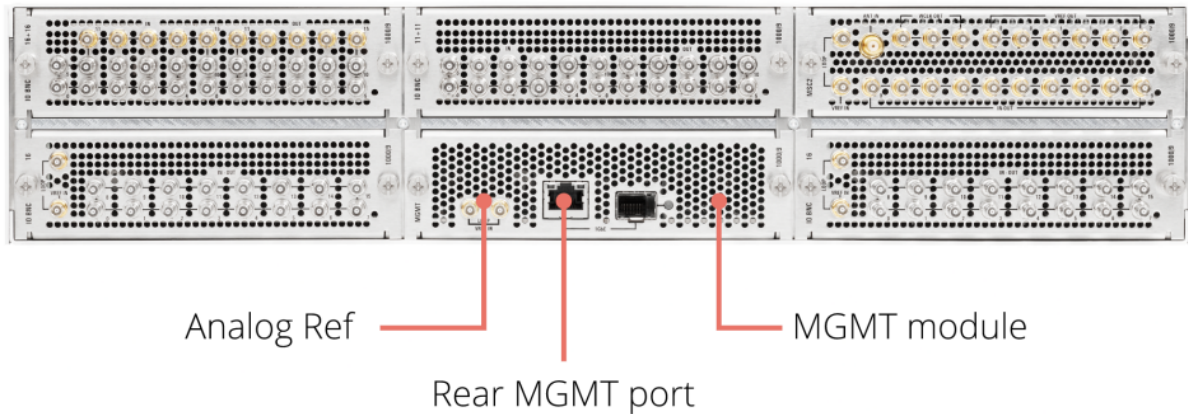
TYPE / PROD NAME	SLOTS
1 RU / FR_1RU	2
2 RU / FR_2RU	5
3 RU / FR_3RU	8
2 RU Low-Noise / FR_2RU_LN	2

The 1RU frame holds 2 PACs, the 2RU holds 5 and the 3RU holds 8. In addition there is a 2RU “low-noise” frame that has additional in-frame fans and holds 2 PACs.



BLADE//runner 3RU Frame Front-view

Revision: AUG23-1



BLADE//runner 2RU Frame Rear-view shown with optional IO_MGMT module

The rear of the frames can optionally be populated with application specific rear-plates for interfacing with legacy infrastructure. Each of the rear-plates correspond to a PAC inserted from the front. PACs are hot-swappable from the front which makes for ease of maintenance without having to re-wire the connectors on the back.

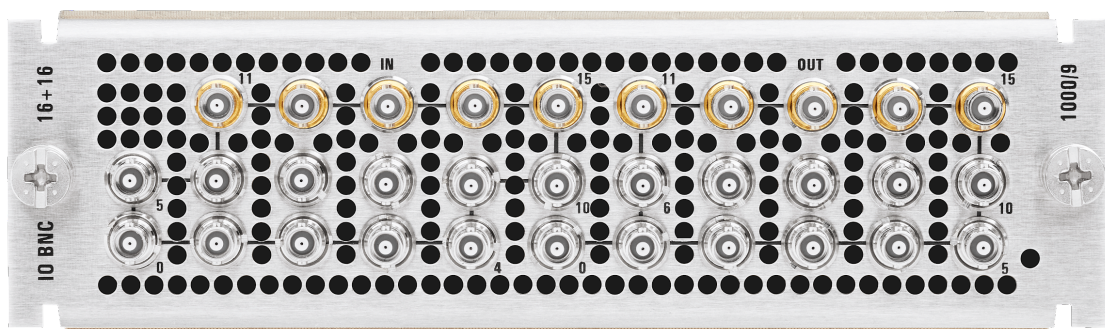
All frames can optionally be configured with the IO_MGMT rear-plate providing a 1GE management interface (RJ45 or SFP) as well as video reference. Mounted in the slot directly behind the front accessible power supplies it connects to all blades in the frame and provides a convenient centralized out-of-band and video reference location.

REAR PLATES

The BLADE//runner platform offers 3 different types of modular rear-plates for the AT300:

IO_BNC_16+16

This rear-plate has 16 micro-BNC inputs and 16 micro-BNC outputs and supports SDI for UHD (12G), FHD (3G), HD (1.5G), SD (270M) as well as MADI.



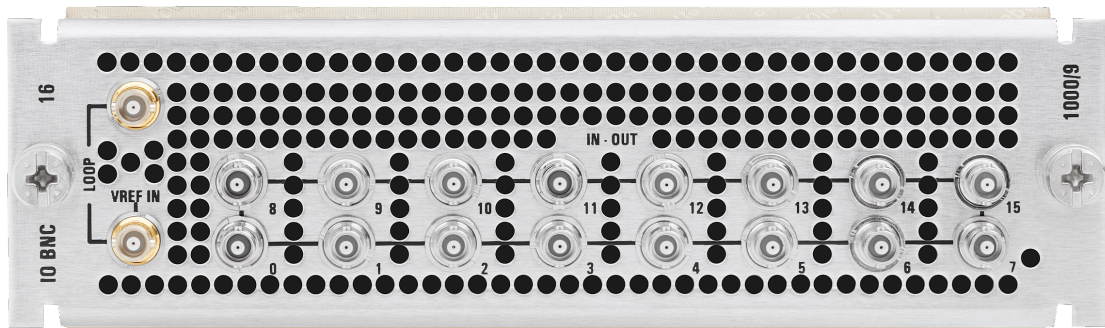
The IO_BNC_16+16 rear-plate

Revision: AUG23-1

BNCs with a silver outline above (11 in and 11 out) are capable of 12G single-link UHD, FHD, HD and SD while BNCs with a gold outline are capable of SD/HD/FHD. UHD quad-split input is also possible for select ports. All outputs are capable of UHD quad-split output and the AT300 will automatically align the four quad-link signals on the output.

IO_BNC_16

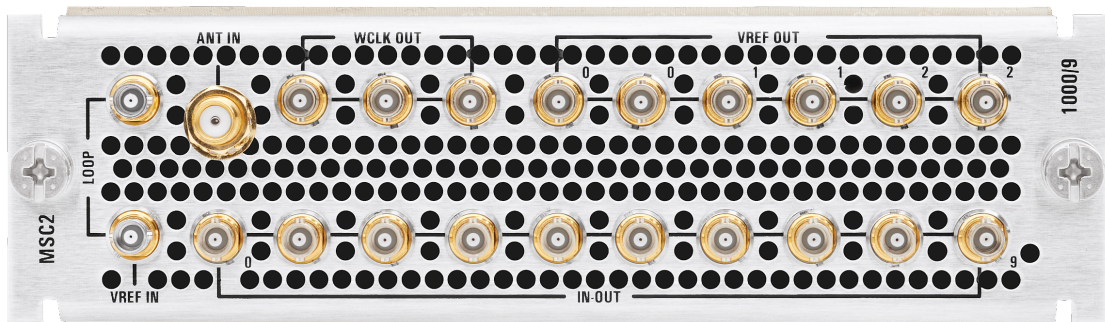
This rear-plate has 16 bi-directional configurable micro-BNC connectors and supports SDI for UHD (12G), FHD (3G), HD (1.5G), SD (270M) as well as MADI. A video reference port with loopback provides input for Bi-/Tri-level.



The IO_BNC_16 rear-plate

IO_MSC2

The IO_MSC2 rear-plate is specifically designed for the PTP Grandmaster and MasterClock option. This rear-plate provides 10 bi-directional configurable micro-BNC connectors configurable as SDI for UHD (12G), FHD (3G), HD (1.5G), SD (270M) or for MADI. In addition it provides a dedicated GPS/GLONASS input and 3 word-clock outputs. 6 micro-BNC connectors in 3 groups provide Bi-/Tri-level outputs for up to 3 different timing offsets. A video reference port with loopback provides input for Bi-/Tri-level.



The IO_MSC2 rear-plate

Revision: AUG23-1

TECHNICAL SPECIFICATIONS

AT300

INTERFACES

2x QSFP28 Ethernet
1x USB-C 100/1000 Ethernet Dedicated management port
1x USB Serial + Console port

VIDEO REFERENCE

IEEE1588 PTPv2 / SDI / Analog Video Ref (Tri-Level, BB) / IP Video-stream

MANAGEMENT AND MONITORING

Protocols: HTTP(S), SNMPv2 & v3, WS/JSON API and Syslog
User interface: Embedded HTML5
Management interface:
Out-of-band and in-band management with guaranteed min bandwidth for inband management & control

INDICATORS

1x status LED per QSFP28 port
1x status per AT300
PPS via console port

OPERATING TEMPERATURE

0°C - +35°C / +32°F - +95°F

NOISE EMISSION

< 60 dBA per AT300 blade

MAX POWER CONSUMPTION

130W

FRAMES

DIMENSIONS

Height: 44/88/132mm (1/2/3 RU)
Width: 482mm (19")
Depth: 535mm (21")

WEIGHT:

1RU: 4.1kg (9lb)
2RU Silent Frame: 6.7kg (15lb)
2RU: 6.4kg (14lb)
3RU: 8.9kg (20lb)

INDICATORS:

2x power status per PSU

POWER:

Connector: 2x IEC redundant
Input Voltage: nominal
100-240V, AC +/- 10%, 50/60Hz +/- 5%
-48V DC. (OPTIONAL)
Hot swappable: Yes

MAX POWER CONSUMPTION

1RU: 300W
2RU Low-Noise Frame: 300W
2RU: 750W
3RU: 1200W

Revision: AUG23-1

REAR-PLATES

CONNECTOR TYPE:

Micro-BNC (HD-BNC)

SMA for GPS antenna input (IO_MSC2 only)

RETURN LOSS:

SD: >15dB

HD: >15dB;

3G-HD: >15dB 5MHz-1.485GHz, >10dB
1.485GHz~2.97GHz

UHD: TBD

CABLE LENGTH:

SD: >350m (using Belden 1694A)

HD: >180m (using Belden 1694A)

3G-HD: >120m (using Belden 1694A)

UHD: >40m (using Belden 4694R)

Revision: AUG23-1