

## 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: OCT24-1

## 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.

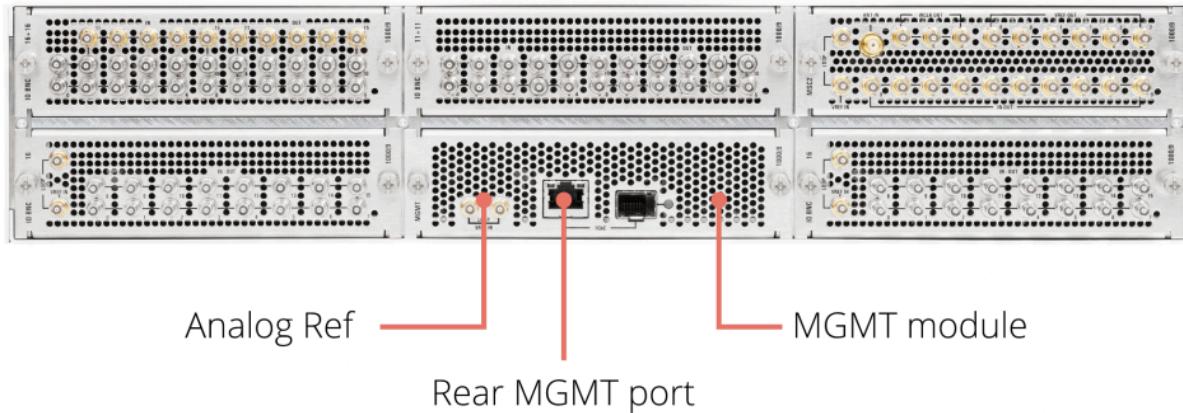
TYPE / PROD NAME	SLOTS
1 RU / FR_1RU	2
2 RU / FR_2RU	5
3 RU / FR_3RU	8
2 RU Low-Noise / FR_2RU_LN	2

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

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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.

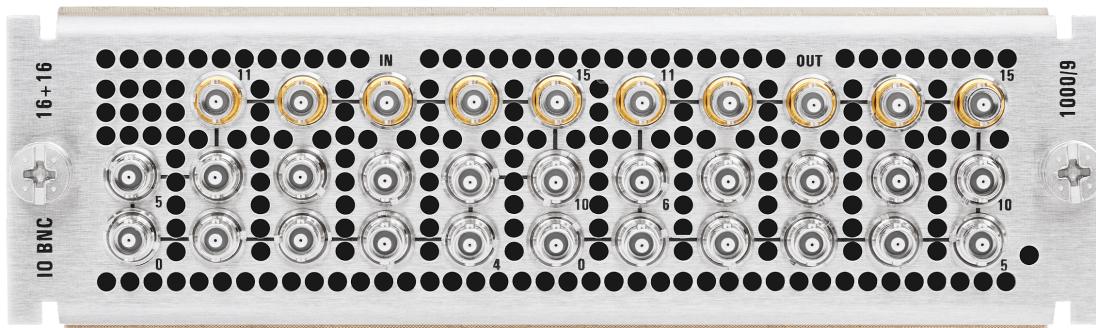
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## REAR MODULES

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

### IO\_BNC\_16+16

This rear-plate has 16 reclocked micro-BNC inputs and 16 reclocked micro-BNC outputs and supports SDI for UHD (12G & 6G), FHD (3G), HD (1.5G), SD (270M) as well as MADI.

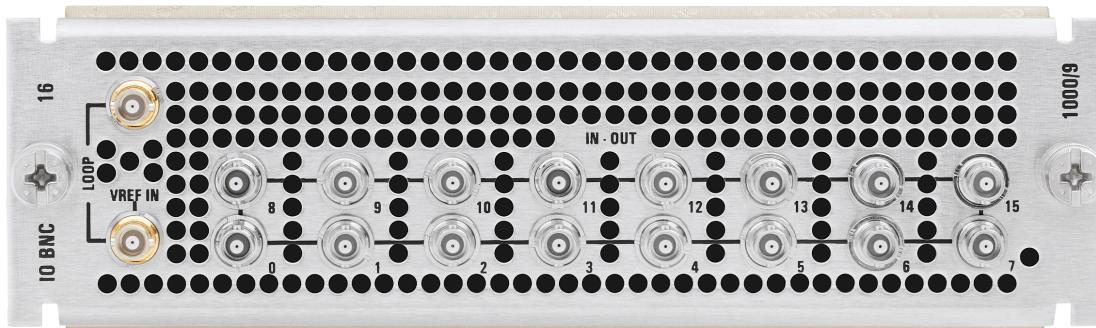


The IO\_BNC\_16+16 rear-plate

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 reclocked micro-BNC connectors and supports SDI for UHD (12G & 6G), FHD (3G), HD (1.5G), SD (270M) as well as MADI. A video reference port with loopback provides input for Bi-/Tri-level.

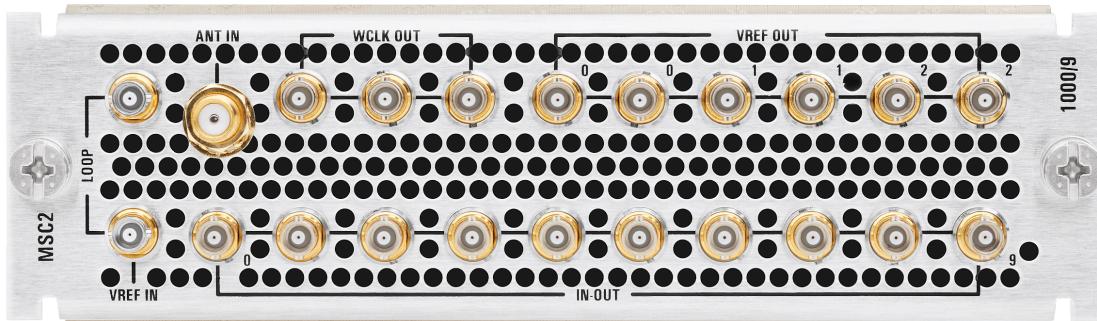


The IO\_BNC\_16 rear-plate

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## 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 reclocked micro-BNC connectors configurable as SDI for UHD (12G & 6G), 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

## TECHNICAL SPECIFICATIONS

### AT300

#### INTERFACES

2x QSFP28 Ethernet (configurable with or without RS-FEC)

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

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## FRAMES

### DIMENSIONS

Height: 44/88/132mm (1/2/3 RU)

Width: 482mm (19")

Depth: 535mm (21")

### WEIGHTS

AT300 (card only): 1.2kg (2.6lb)

1RU Frame incl dual PS: 5.2kg (12lb)

2RU Low-noise incl dual PS: 7.8kg (17lb)

2RU Frame incl dual PS: 7.5kg (17lb)

3RU Frame incl dual PS: 11kg (24lb)

### 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

### ENVIRONMENTAL CERTIFICATIONS

CE & FCC

CB 2nd Edition (EU, Japan)

CB 3rd Edition, TÜV SÜD / NRTL  
(USA,Canada)

## NOISE EMISSION

Measured when fully populated with

AT300s at 23°C ambient temperature

1RU Frame: 71dB

2RU Frame: 75dB

3RU Frame: 79dB

2RU Low-noise Frame: 46dB

## 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)

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