ATCA-3671 Specifications

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ATCA-3671 Specifications

Definitions

Warranted specifications describe the performance of a model under stated operating conditions and are covered by the model warranty.

Characteristics describe values that are relevant to the use of the model under stated operating conditions but are not covered by the model warranty.

- ***Typical*** specifications describe the performance met by a majority of models.
- ***Nominal*** specifications describe an attribute that is based on design, conformance testing, or supplemental testing.

Specifications are ***Typical*** unless otherwise noted.

Conditions

Specifications are valid at 23 °C unless otherwise noted.

Reconfigurable FPGA

FPGA	4x Virtex-7 XC7VX690T

FPGA Resources

Note The following specifications apply to each FPGA.

LUTs	433,200

DSP48 slices (25 × 18 Multiplier)	3,600
Embedded block RAM	52,920 kb
Default timebase	100 MHz
Timebase reference sources	Onboard 100 MHz oscillator
Timebase accuracy	±100 ppm, 250 ps peak-to-peak jitter
Data transfers	DMA, interrupts, programmed I/O
Number of DMA channels	64

FPGA Digital Input/Output

Note The following specifications apply to each FPGA.

External GPIO	
Number of channels	10
Maximum I/O data rate	100 Mb/s
I/O compatibility	3.3 V, single-ended

ESD	IEC 61000-4-2 (ESD) ± 30 kV (contact)
Inter-FPGA	
Number of channels[1]	27
Maximum I/O data rate	1 Gb/s
I/O compatibility	1.8 V, LVDS

Onboard DRAM

Note The following specifications apply to each FPGA.

Memory size	16 GB (two 8 GB DIMMs)
Theoretical maximum data rate	21 GB/s

Jitter Cleaning Dual Phase Locked Loop (PLL)

Note The following specifications apply to each FPGA.

Clock Jitter Cleaner	TI LMK04808B
VCXO frequency	122.88 MHz

Number of clock sources from FPGA	1
Number of MGT reference clock outputs	8
Number of SMA external clock outputs	1

Inter-FPGA High-Speed Serial Transceivers

Number of lanes to adjacent (ring) FPGAs	16
Number of lanes to diagonal FPGA	12
Maximum data rate	12.5 Gb/s

Note Each FPGA has a serial connection to two adjacent (ring) FPGAs and one diagonal FPGA.

FPGA CLK/TRIG

Table 1. FPGA Clock/Trigger Input

Name	Input Location	Destination	Use Cases	Input P2P Skew	Max CLK Rate
SYNC BACKPLANE A/B	On-board (backplane)	Global (all FPGAs)	Clocks/Trigger	900 ps	125 MHz
SYNC FRONT PANEL A/B	SMA	Global (all FPGAs)	Clocks/Trigger	100 ps	312.5 MHz
GCLK0-3	On-board (FPGA)	Programmable (all FPGAs)	Clocks/Trigger	1,550 ps	312.5 MHz

Name	Input Location	Destination	Use Cases	Input P2P Skew	Max CLK Rate
FPGA IN/OUT A-D	SMA	Single FPGA	Clocks/Trigger	500 ps [2]	312.5 MHz
MGT REF	SMA	Global (all FPGAs)	Clocks	200 ps	312.5 MHz
FMC CLK	SMA	Global (all FMCs)	Clocks	100 ps	—

Table 2. FPGA Clock/Trigger Output

Name	Output Driver	Destination	Use Cases	Output P2P Skew	Max CLK Rate
SYNC BACKPLANE A/B	FPGA	Backplane	Clocks/Trigger	600 ps	125 MHz
GCLK0-3	FPGA	Programmable (all FPGAs)	Clocks/Trigger	1,550 ps	312.5 MHz
FPGA IN/OUT A-D	FPGA	SMA	Clocks/Trigger	500 ps [2]	312.5 MHz

Power

Maximum Power Requirements

Note Power requirements are dependent on the adapter modules installed and the contents of the FPGA application.

Power supply	-48 V
Current	9 A

Maximum Working Voltage

Note Maximum working voltage refers to the signal voltage plus the common-mode voltage.

Channel-to-earth	0 V to 3.3 V, Measurement Category I
Channel-to-channel	0 V to 3.3 V, Measurement Category I

Caution Do not use this device for connecting to signals in Measurement Categories II, III, or IV.

Note Measurement Categories CAT I and CAT O are equivalent. These test and measurement circuits are not intended for direct connection to the MAINS building installations of Measurement Categories CAT II, CAT III, or CAT IV.

Physical

Dimensions (not including connectors)	31.1 cm × 35.2 cm × 6.2 cm (12.3 in. × 13.9 in. × 2.5 in.)
Weight	4.5 kg (10.0 lbs)

Notice Clean the hardware with a soft, nonmetallic brush. Make sure that the hardware is completely dry and free from contaminants before returning it to service.

Environment

Ambient temperature range	0 °C to 40 °C (tested in accordance with IEC 60068-2-1 and IEC 60068-2-2)
Maximum altitude	2,000 m (800 mbar) (at 25 °C ambient temperature)
Pollution Degree	2

Indoor use only.

Operating Environment

Operating temperature range	
Used with a Single-Module ATCA Chassis	0 °C to 25 °C
Used with a 14-Slot ATCA Chassis	dependent on final system installation
Relative humidity range	10% to 90%, noncondensing (tested in accordance with IEC 60068-2-56)

Note Operating temperatures are only valid when the ATCA-3671 module is used with the specified chassis.

Compliance and Certifications

Safety Compliance Standards

This product is designed to meet the requirements of the following electrical equipment safety standards for measurement, control, and laboratory use:

- IEC 61010-1, EN 61010-1
- UL 61010-1, CSA C22.2 No. 61010-1

Note For safety certifications, refer to the product label or the Product Certifications and Declarations section.

Electromagnetic Compatibility

This product meets the requirements of the following EMC standards for electrical equipment for measurement, control, and laboratory use:

- EN 61326-1 (IEC 61326-1): Class A emissions; Basic immunity
- EN 55011 (CISPR 11): Group 1, Class A emissions
- EN 55022 (CISPR 22): Class A emissions
- EN 55024 (CISPR 24): Immunity
- AS/NZS CISPR 11: Group 1, Class A emissions
- AS/NZS CISPR 22: Class A emissions
- FCC 47 CFR Part 15B: Class A emissions
- ICES-001: Class A emissions

Note In the United States (per FCC 47 CFR), Class A equipment is intended for use in commercial, light-industrial, and heavy-industrial locations. In Europe, Canada, Australia, and New Zealand (per CISPR 11), Class A equipment is intended for use only in heavy-industrial locations.

Note Group 1 equipment (per CISPR 11) is any industrial, scientific, or medical equipment that does not intentionally generate radio frequency energy for the treatment of material or inspection/analysis purposes.

Note For EMC declarations, certifications, and additional information, refer to the Product Certifications and Declarations section.

CE Compliance CE

This product meets the essential requirements of applicable European Directives, as follows:

- 2014/35/EU; Low-Voltage Directive (safety)
- 2014/30/EU; Electromagnetic Compatibility Directive (EMC)

Product Certifications and Declarations

Refer to the product Declaration of Conformity (DoC) for additional regulatory compliance information. To obtain product certifications and the DoC for NI products, visit ni.com/product-certifications, search by model number, and click the appropriate link.

Environmental Management

NI is committed to designing and manufacturing products in an environmentally responsible manner. NI recognizes that eliminating certain hazardous substances from our products is beneficial to the environment and to NI customers.

For additional environmental information, refer to the ***Engineering a Healthy Planet*** web page at ni.com/environment. This page contains the environmental regulations and directives with which NI complies, as well as other environmental information not included in this document.

EU and UK Customers

- **Waste Electrical and Electronic Equipment (WEEE)**—At the end of the product life cycle, all NI products must be disposed of according to local laws and regulations. For more information about how to recycle NI products in your region, visit ni.com/environment/weee.

电子信息产品污染控制管理办法（中国RoHS）

- **中国RoHS**— NI符合中国电子信息产品中限制使用某些有害物质指令(RoHS)。关于NI中国RoHS合规性信息，请登录 `ni.com/environment/rohs_china`。(For information about China RoHS compliance, go to `ni.com/environment/rohs_china`.)