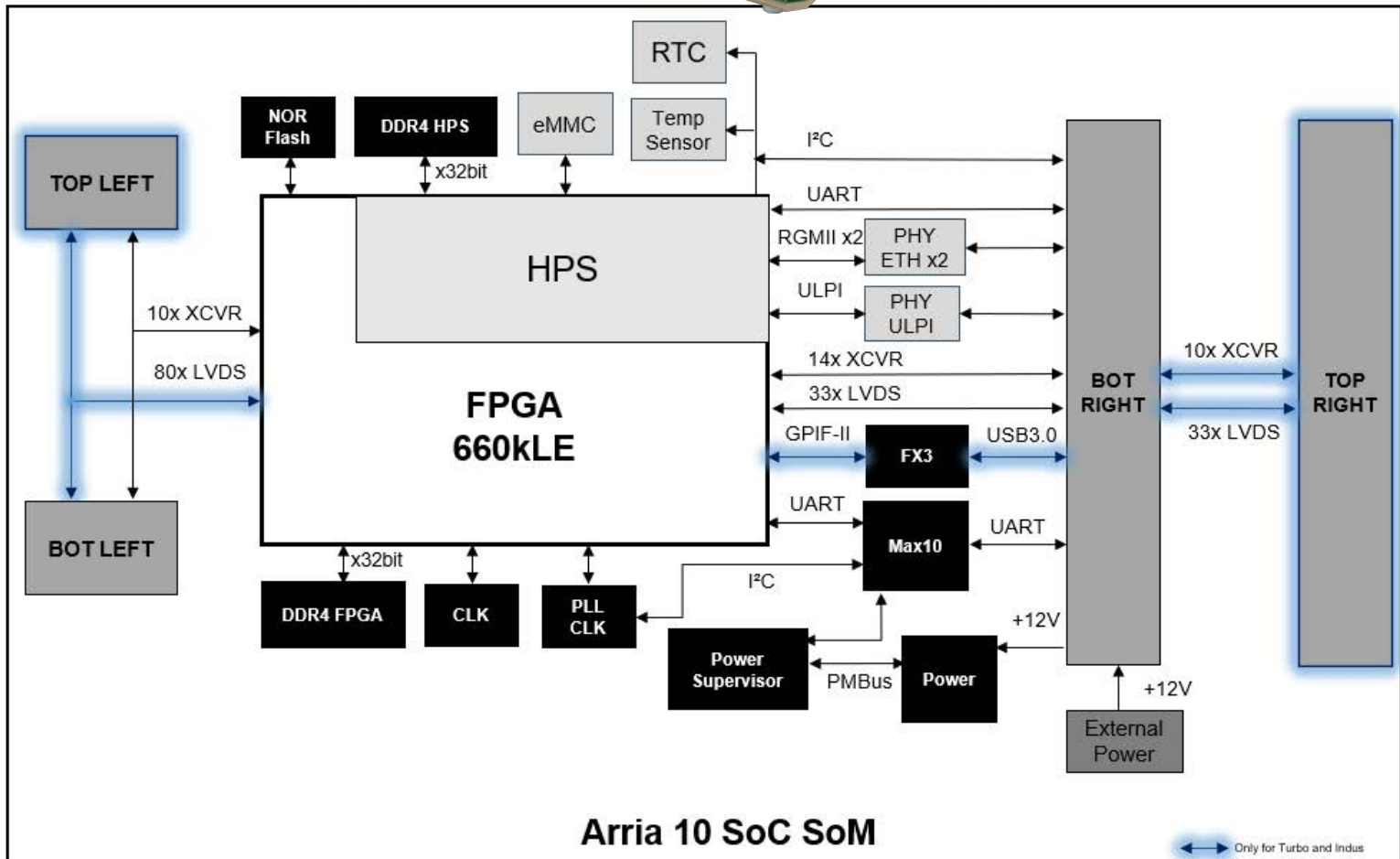
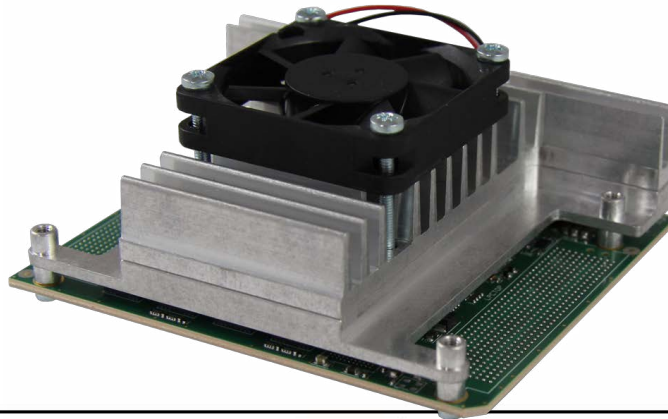




Achilles Arria® 10 SoC System-on-Module



- Intel® Arria® 10 SX 270 or 660 KLE
- PCIe Gen3 x8
- Dual ARM® Cortex™ A9

- 228 SE IOs total (113 LVDS)
- 24 transceivers up to 12Gbps
- 2x DDR4 banks, 8GByte total
- Commercial & Industrial Temp
- Long Term Supply

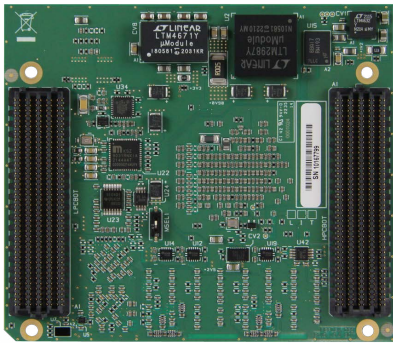
- Bioscience
- High Precision Measurement
- Machine Automation
- Radar Systems
- Customizable

Features	Description	Achilles "Lite" 12G V5	Achilles "Indus" V5	Achilles "Indus" 12G V5
FPGA SoC	Arria® 10 SoC, F34 package (1152 pins)	10AS027H3F34E2SG, speed grade -2 270KLE, 830 DSP Blocks Dual-Core ARM® Cortex®-A9 MPCore Processor	10AS066H2F34I1HG, speed grade -1 660KLE, 1688 DSP Blocks Dual-Core ARM® Cortex®-A9 MPCore Processor	
DDR4 Memory	32bit wide bank for FPGA	4GByte @2133MT/s	4GByte @2400MT/s	
	32bit wide bank for HPS	3GByte @2133MT/s	3GByte @2400MT/s	
Communication & Networking		2x Gigabit Ethernet RGMII on the HPS USB 2.0 host/device OTG support connected to the HPS I²C link support connected to the HPS,EEPROM, Sensor Temp UART connected to System controller and to HPS		
		No USB 3.0 ❌		USB 3.0 using Cypress FX3 super speed controller
FMC Connectors	Top Left High Pin Count (HPC)	❌	Power Supplies Output: +12/+3.3V/1.8V/ +VADJ =	❌
			80 LVDS pairs (1.25Gbps) or 160 single ended LVCMOS1.8V	
			10 Serial transceiver channels (RX and TX) @7Gbps	
	Top Right Low Pin Count (LPC)	❌	Power Supplies Output: +12/+3.3V/1.8V/ +VADJ =	❌
			33 LVDS pairs (1.25Gbps) or 68 single ended LVCMOS1.8V	
			10 Serial transceiver channels (RX and TX) @7Gbps	
	Bottom Left High Pin Count (HPC)	No Power supply, respect +VADJ electrical standard (+1.8V)		
		34 LVDS pairs (1.25Gbps) or 68 single ended LVCMOS 1.8V	80 LVDS pairs (1.25Gbps) or 160 single ended LVCMOS 1.8V	
		10 Serial transceiver channels (RX and TX) @12Gbps	10 Serial transceiver channels (RX and TX) @7Gbps	10 Serial transceiver channels (RX and TX) @12Gbps
	Bottom Right Low Pin Count (LPC)	Power Supply +12V Hard Processing ARM peripheral I/Os (GbE,USB2.0,I²C,UART)		
		33 LVDS pairs (1.25Gbps) or 68 single ended LVCMOS 1.8V FPGA peripheral I/Os (GPIO I²C= USB3.0)		
		14 Serial transceiver channels (RX and TX) @12Gbps	4 Serial transceiver channels (RX and TX) @10Gbps 10 Serial transceiver channels (RX and TX) @7Gbps	14 Serial transceiver channels (RX and TX) @12Gbps
FPGA Configuration		Onboard JTAG configuration circuitry to enable configuration over USB	Onboard JTAG configuration circuitry to enable configuration over USB	
		512Mb Quad SPI Flash for remote upgrade and failsafe configuration	512Mb Quad SPI Flash for remote upgrade and failsafe configuration	
Software Configuration	Nand Flash eMMC (Store operating Linux system : U boot, Kernel and RootFS)	32GByte		
Module dimensions		83.1 x 95 mm (3.3 x 3.8 inches)		
Weight		Lite 12G module without Mechanics: 78.8g Heat Spreader: 93.9g Heat Sink: 86.9g Fan: 15.7g	Indus/Indus 12G module without Mechanics: 87.8g Heat Spreader: 93.9g Heat Sink: 86.9g Fan: 15.7g	
Temperature range		Commercial	Industrial	
Deliverables		Arria® 10 SoC module (+ heat spreader, heat sink and fan)		
Ordering Information		RXCA10S027PF34-SOM12L	RXCA10S066PF34-SOM02I	RXCA10S066PF34-SOM12I

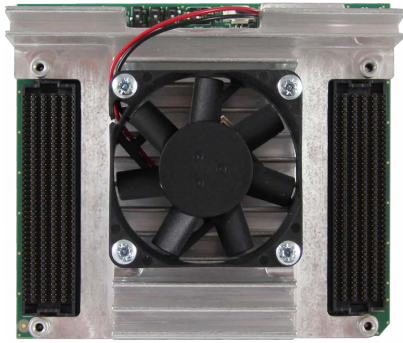
Indus



Top side



Bottom side
compatible all versions

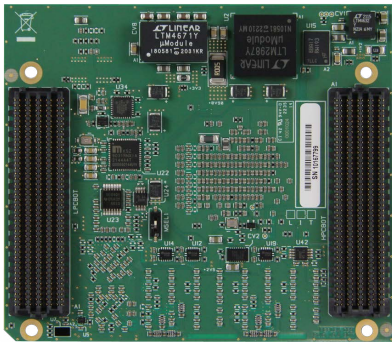


with heatspreader + heatsink + fan

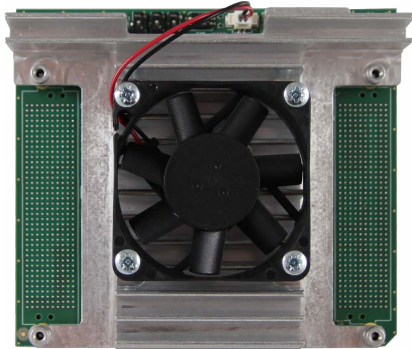
Indus 12G



Top side

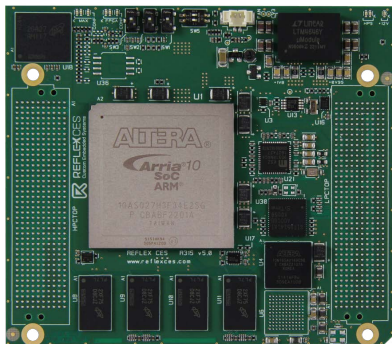


Bottom side
compatible all versions

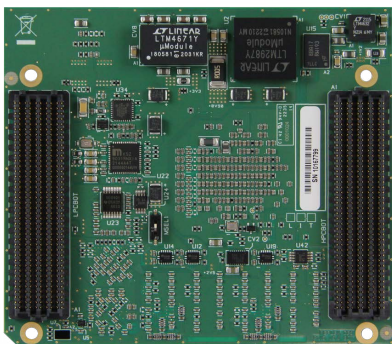


with heatspreader + heatsink + fan

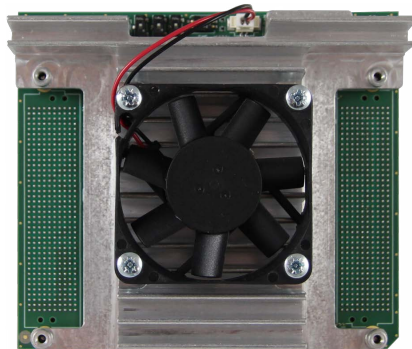
Lite 12G



Top side



Bottom side
compatible all versions



with heatspreader + heatsink + fan

Related products

Deliverables

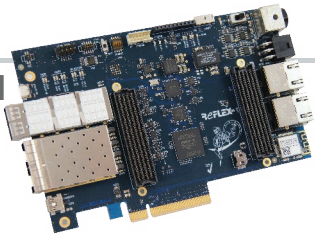
The following deliverables are only included with the purchase of an Arria® 10 SoC SoM Instant-DevKit :

- Module, Starter board, PCIe carrier board documentation (Reference Manual, Starter Guide)
- Starter board & PCIe carrier board schematics
- Carrier Design Guide
- Mechanical drawings PDF, 3D Step, Assembly files PDF
- HDL Test Designs
 - Built with Intel® Quartus® Prime Pro Version 21.3
- FPGA HPS Software
 - Includes U-Boot bootloader (v2021.07) and Linux kernel (v5.10) to run an embedded Linux OS on the FPGA HPS
 - Built with Yocto Project version 4.0 (Kirkstone)
- Software design accessible online on rocketboards
- Online support at support.reflexces.com

PCIe Carrier board

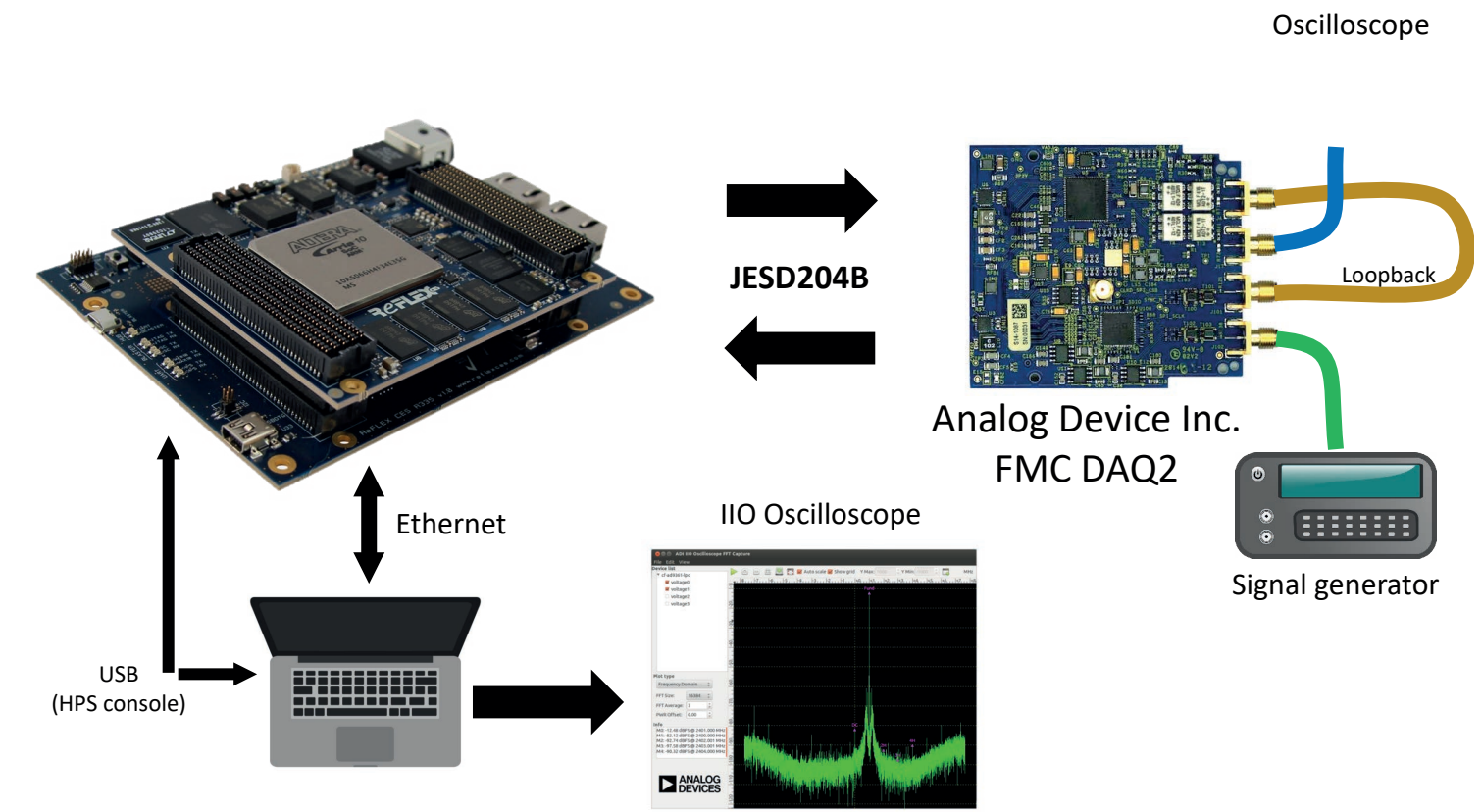
of the Arria® 10 SoC SoM

ORDERING INFORMATION:
RXCA10S0000F34-FHP0SA



Instant-DevKit
Arria® 10 SoC SoM IDK

ORDERING INFORMATION:
RXCA10S066PF34-IDK0SA



FPGA resources (HPS included)

- ALM: 28k (11%)
- Reg: 48k (10%)
- LUT: 31k
- M20K: 608 (29%)
- DSP: 16 (1%)
- IOPLL: 5 (45%)
- HSSI (TX + RX): 4 + 4

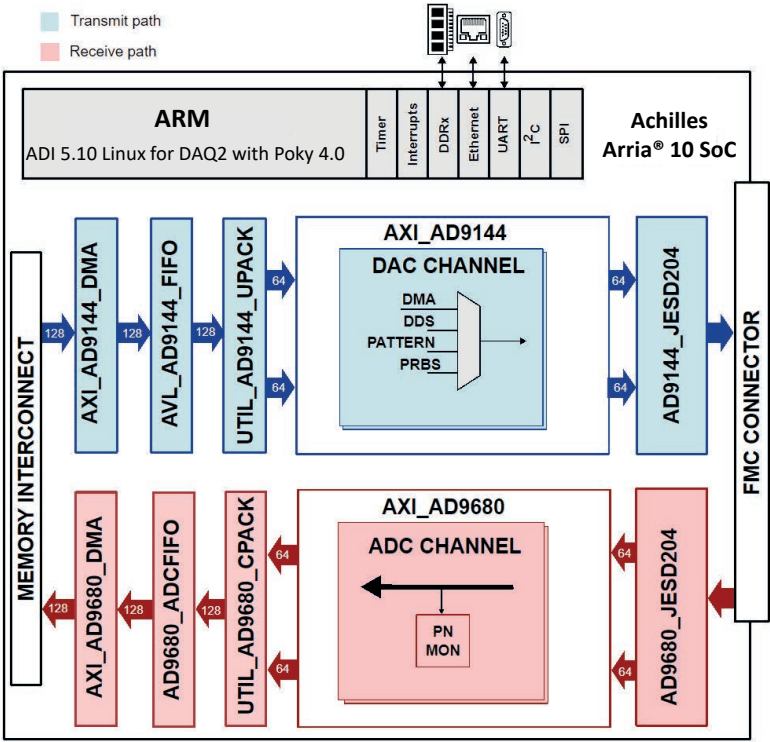
ADC, DAC and JESD204B setup

- DAC:
 - 4 lanes @5Gbps
 - Fsample: 500MHz
- ADC:
 - 4 lanes @5Gbps
 - Fsample: 500MHz

Power*

- Complete setup: 28W
- FPGA (est. **): 8W

* Including FAN: 1.3W
** Quartus Power Estimator



Deliverables

- JESD204B BSP on request

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