GOWIN

Arora – V

Arora V Features

High-Performance Low-Power
★ Advanced 22nm LP process
★ Multiple Core Voltage - 0.9v/1.0v/1.2v
★ Dynamic Clock Gating

High-Speed SERDES
★ 8x Transceivers 270Mbps to 12.5Gbps. SERDES custom protocols including 10Gb Ethernet

PCIe3.0
★ Supports x1, x2, x4, x8 Endpoints and Root Port
★ Including Root Complex and End Point Dual-Mode

Hardcore MIPI C-PHY & D-PHY
★ MIPI DSI-2 and CSI-2 device interfaces
★ MIPI Data-Rate: CPHY 2.5Gbps/trio, DPHY 2.5 Gbps/lane
★ MIPI bandwidth up to 20Gbps using 8 Data/Clock Lane

▶ **DDR Rate 1333Mbps**

▶ **Integrated ADC supports On-Chip Temperature Measurement**

▶ **Single Event Upset (SEU) Mitigation**

▶ **Programming Support**
★ JTAG, SSPI, MSPI, CPU & Serial Modes inc remote update

Device	GW5A-25	GW5A-60	GW5A-138
LUT4	23,040	59,904	138,240
SSRAM (bits)	180K	468K	1080K
BSRAM (bits)	1008K	2124K	6120K
PLLs	6	8	12
PcIe 2.0 lanes	0	0	0
LVDS Gbps	1.25	1.25	1.25
DDR3 Mbps	1,066	1,333	1,333
MIPI D-PHY Hardcore	2.5Gbps(RX/TX) / 4 Data Lanes / 1 Clock Lane	2.5Gbps(RX/TX) / 4 Data Lanes / 1 Clock Lane	2.5Gbps(RX/TX) / 8 Data Lanes / 2 Clock Lanes
ADC	1	2	2
Max GPIOs	239	320	312
Core Voltage Typ.	0.9V/1.0V/1.2V	0.9V/1.0V/1.2V	0.9V/1.0V

| Device	GW5AT-15	GW5AT-60	GW5AT-75	GW5AT-138
LUT4	15,120	59,904	86,688	138,240
SSRAM (bits)	118k	468K	677K	1080K
BSRAM (bits)	630K	2124K	4608K	6120K
PLLs	2	8	12	12
Transcievers	x4 @ 270Mbps to 12.5GB	x4 @ 270Mbps to 12.5GB	x8 @ 270Mbps to 12.5GB	x8 @ 270Mbps to 12.5GB
PCIe Lanes	x1, x2, x4 PCIe 3.0	x1, x2, x4 PCIe 2.0	x1, x2, x4, x8 PCIe 2.0	x1, x2, x4, x8 PCIe 2.0
LVDS Gbps	1.25	1.25	1.25	1.25
DDR3 Mbps	-	1333	1333	1333
Mipi D-PHY Hardcore	2.5Gbps(RX/TX) / 4 Data Lanes / 1 Clock Lane	2.5Gbps(RX/TX) / 4 Data Lanes / 1 Clock Lane	2.5Gbps(RX/TX) / 8 Data Lanes / 2 Clock Lanes	2.5Gbps(RX/TX) / 8 Data Lanes / 2 Clock Lanes
ADC	1	2	2	2
Max GPIOs	53	320	312	312
Core Voltage Typ.	0.9V	0.9V/1.0V/1.2V	0.9V/1.0V	0.9V/1.0V

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SERDES Eye Diagram
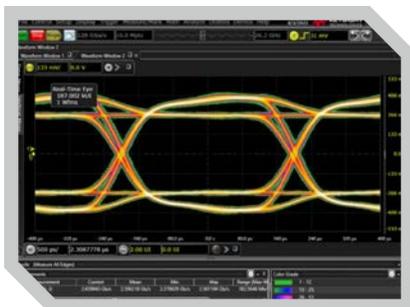
2.5 Gbps
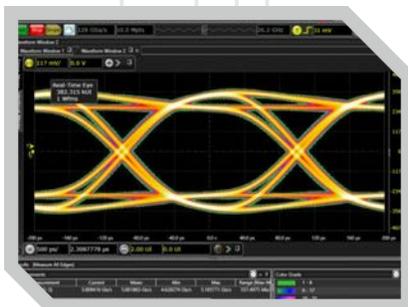
5Gbps

10Gbps

Free IP Licensing

PCIE 2.0	RapidIO
SGMII	SDI-Tx/Rx
1000 Base-X	eDP-Tx/Rx
10G Base-R	DP-Tx/Rx
XGMAC	SLVS-EC-Rx
XAUI	HDMI
CPRI	USB3.1
JESD204B	ISP
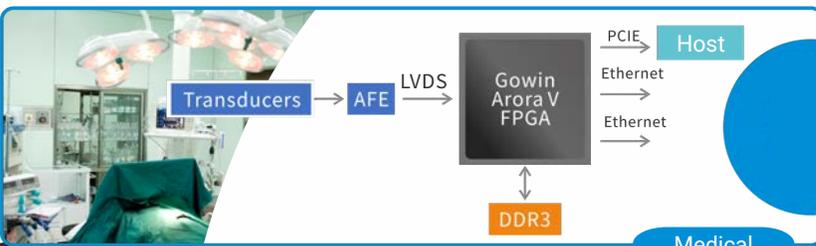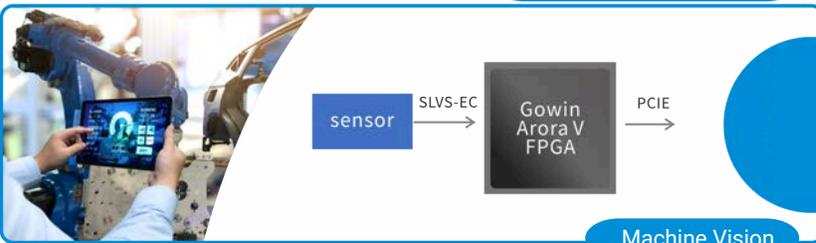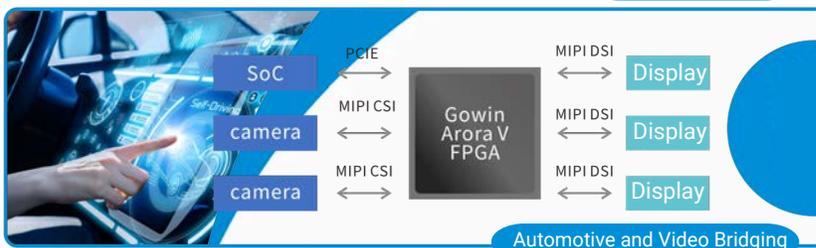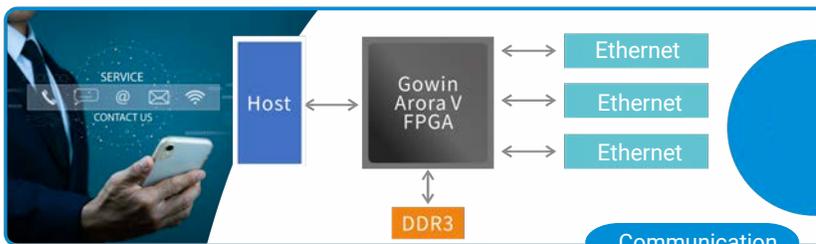
Applications

Medical

Communication

Automotive

Security Monitoring

Power Systems

Artificial Intelligence

Industrial

Solutions

Host ↔ Gowin Arora V FPGA ↔ Ethernet / Ethernet / Ethernet

DDR3

Communication

SoC — PCIE → Gowin Arora V FPGA — MIPI DSI ↔ Display
camera — MIPI CSI → Gowin Arora V FPGA — MIPI DSI ↔ Display
camera — MIPI CSI → Gowin Arora V FPGA — MIPI DSI ↔ Display

Automotive and Video Bridging

sensor — SLVS-EC → Gowin Arora V FPGA — PCIE →

Machine Vision

Transducers → AFE — LVDS → Gowin Arora V FPGA — PCIE → Host / Ethernet / Ethernet

DDR3

Medical