KB9102 Product Brief

A PCIe® 5.0, 7-port (8-lane) packet switch
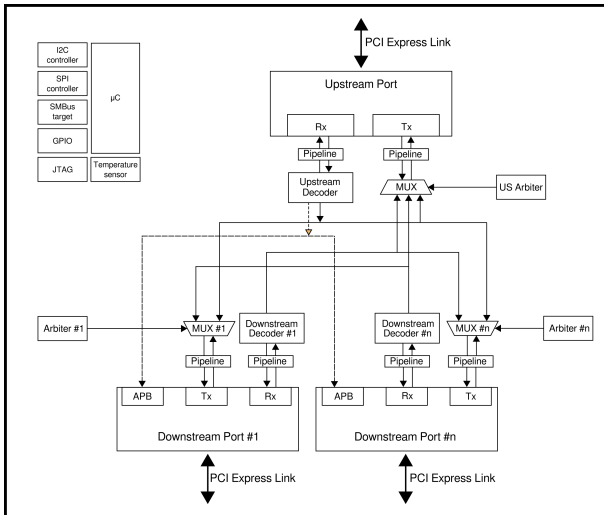
Product overview

Fig. 1: Block diagram

The KB9102 is a PCIe® 5.0 transport layer switch that supports one upstream port (up to four lanes) and up to six downstream ports (four or six lanes total). Each upstream and downstream port can operate as an independent PCIe port simultaneously with different PCIe speeds and port capabilities. The switch:

- Manages link initialization, dynamic data traffic, credit allocation, and error status between a CPU root complex and each endpoint device.
- Is ideal for small form factor and lower power system design due to its small package housing.
- Offers system design flexibility - allowing ultra-mobile processors with limited PCIe IO resources to support more PCIe endpoint devices.

Features

- 7-port (8-lane) PCIe 5.0/4.x/3.x switch:
  - One upstream port: two or four lanes
  - Six downstream ports: four or six lanes
- Switch features:
  - TLP credit allocation, round-robin arbitration
  - Peer-to-peer transaction: allows endpoint device access memory without CPU involvement
  - Access Control Service (ACS) on downstream ports only
  - Data protection with LCRC, ECR, ECC and parity check
- EEPROM/SPI/SMBUS/JTAG with integrated MCU
- On-chip diagnostics including EyeScope and

Bit-Error Rate monitors
- Integrated logic analyzer (upstream port / downstream port#0)
- RTSSM analyzer
- Power state / consumption:
  - Supports six power states (L0/L0s/L1/L1.1/L1.2/L2)
  - Regular mode: 1.8V and 0.9V (~2 W for @ PCIe 3.0)
  - Power Saving mode: 1.8V, 0.9V and 1.2V/1.5V (~1.75 W @ PCIe 3.0)
- Temperature range: 0°C to 70°C (standard) and -40°C to 85°C (industrial)
- Package:
  - 5.5 mm x 10 mm 146-ball BGA package
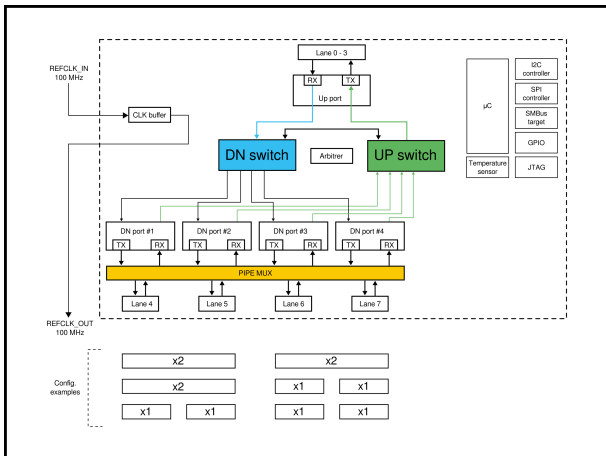
Configuration examples

Fig. 2: Block diagram: one upstream port (four lanes) and four downstream ports (four lanes)
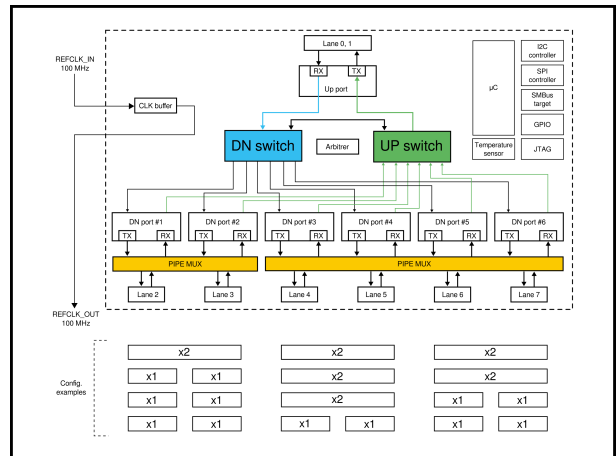

Fig. 3: Block diagram: one upstream port (two lanes) and six downstream ports (six lanes)

Applications

- Mobile and desktop computing
- Industrial PCs
- Networking and storage

- 5G router / CPE
- Smart home appliances

Device and ordering information

Table 1: Device and ordering information

Ordering code	Package	Delivery form	Quantity
KB9102-AR	BGA 5.5 mm x 10 mm 146-ball	Tape & Reel	TBC
KB9102-AD	BGA 5.5 mm x 10 mm 146-ball	Tray	TBC

For ordering information, contact sales@kandou.com.