

Intel® vRAN Accelerator ACC100 Adapter

Cost-effective, low-power FEC Acceleration for high-capacity 4G and 5G vRAN deployment

Key Features

- Low-power FEC acceleration
- Concurrent 4G and 5G FEC acceleration
- Supports VM, bare metal, and cloud-native environments
- Support for open source vRAN efforts

As communications service providers move from 4G to 5G networks, many are adopting virtualized radio access network (vRAN) architectures for higher channel capacity and easier deployment of edge-based services and applications. vRAN solutions are ideally located to deliver low-latency services with the flexibility to increase or decrease capacity based on the volume of real-time traffic and demand on the network.

4G and 5G Forward Error Correction (FEC) Acceleration

One of the most compute-intensive 4G and 5G workloads is RAN layer 1 (L1) FEC, which resolves data transmission errors over unreliable or noisy communication channels. FEC technology detects and corrects a limited number of errors in 4G or 5G data, eliminating the need for retransmission. Since the FEC acceleration transaction does not contain cell state information, it can be easily virtualized, enabling pooling benefits and easy cell migration.

Increased vRAN Cell Density and Efficiency

The Intel vRAN Accelerator ACC100 Adapter enables balanced platform performance by rapidly performing Layer 1 FEC algorithms, making more host processing power available for increased channel capacity on edge-based services and applications. This fixed-function PCIe 3.0 adapter works with Intel® Xeon® Scalable processors and Intel® Xeon® D processors to enable low-cost, power-efficient 4G and 5G vRAN solutions.

Simplified Integration

Ecosystem readiness and support for multiple deployment environments simplifies integration and validation of the Intel® vRAN Accelerator ACC100 Adapter:

- Supports the FlexRAN software reference architecture to enable users to quickly evaluate and build platforms for the wide range of vRAN networks
- Uses the O-RAN-adopted DPDK BBDev API – an API that Intel contributed to the open source community to enable choice and faster time-to-market for FEC acceleration solutions
- Supports VM, Bare Metal and cloud-native environments



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Adapter Features

Bus Type/Bus Width	PCIe 3.0 x16
Hardware Certifications	FCC A, UL, CE, VCCI, BSMI, CTICK, KCC
RoHS-compliant	Product is compliant with EU RoHS Directive 2011/65/EU (Directive 2011/65/EU) and its amendments (e.g. 2015/863/EU)
Accelerator	Intel® vRAN Dedicated Accelerator ACC100
Bracket	Low Profile and Full Height
Dimension	6.67 in x 2.70 in (169 mm x 69 mm)

FEC Acceleration Features

LDPC FEC processing for 3GPP 5G	<ul style="list-style-type: none">• LDPC encoder/decoder• Code block CRC generation/checking• Rate matching/de-matching• HARQ buffer management
Turbo FEC processing for 3GPP 4G:	<ul style="list-style-type: none">• Turbo encoder/decoder• Code block CRC generation/checking• Rate matching/de-matching
Load balancing supported by the hardware queue manager (QMGR)	Arbitrates uplink and downlink block requests based on bandwidth allocation and priority

Manageability

SMBus	Operates at up to 1Mbps
PLDM over MCTP over SMBus <ul style="list-style-type: none">• Voltage sensors• Temperature sensors• Power sensor• Warning/Fatal thresholds	Supports PLDM 2.1 All primary and secondary adapter voltages Adapter, DDR, and Bracket ambient Overall board power Can be programmed
Hardware-based emergency shutdown	Shuts down controller when card is over temperature or over voltage

Power Consumption

53W

Thermals and Airflow

55 °C	550 LFM
61 °C	650 LFM

Product Order Code

Intel vRAN Accelerator ACC100 Adapter VACC100G1P5

Supported Operating Systems and Software

- Interface through the DPDK BBDev library and APIs
- Support in FlexRAN software reference architecture
- Linux OS supported

Warranty

Intel limited lifetime hardware warranty, 90-day money-back guarantee (US and Canada) and worldwide support.

Customer Support

For customer support options in North America visit:
intel.com/content/www/us/en/support/contact-support.html

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