Product Brief

Intel® QuickAssist Adapter 8960/8970

Hardware Acceleration for Data Center Security, Networking, Storage, and Communications Applications

Key Features

- Up to 100Gbps hardware acceleration performance
- Commercial ready Intel-branded solution
- Low-profile PCI Express 3.0 x8 (8960) and x16 (8970) compliant adapter cards
- Virtualization support for Network Function Virtualization (NFV) deployments
- Utilizes existing Intel® QuickAssist Technology Software Libraries and APIs supporting IPsec, SSL/TLS, network, storage, communications services, and workloads

Overview

Intel® QuickAssist Adapters 8960/8970 deliver turn-key standard PCI Express (PCIe) access to hardware acceleration for compute intensive applications.

- Hardware acceleration performance is designed specifically to meet the thermal, power, and form factor requirements for data center servers.
- Seamlessly support industry standard server deployments to comply with low-profile form factor constraints, passive thermal needs, and PCI Express 3.0 specifications.
- One physical adapter supports several virtual data center applications using single root input/output virtualization (SR-IOV) technology.
- Intel® QuickAssist Library provides an acceleration stack with a common interface for both application and accelerator function developers.
- APIs and driver capabilities for standard operating systems provide flexibility to adapt to new applications.

Intel® QuickAssist Adapters, with virtualization support, software libraries, and APIs, offer a complete and versatile acceleration stack for compute-intensive markets.

Features	Description
General	
Software	• Intel® QuickAssist Technology Software Library and API Support: Linux, KVM, open source framework patches, and OpenSSL
Power	• Onboard voltages are generated from the +12V main power supplied by the PCIe edge connector. The 3.3V auxiliary supply is used for the FRU EEPROM during an auxiliary state, and the 3.3V power supply is not used.
Virtualization	• Single Root I/O Virtualization (SR-IOV); Up to 48 Virtual Functions and 3 Physical Functions
Mechanical and I/O	• 8960 supports PCI Express 3.0 x8 low-form factor dimensions • 8970 supports PCI Express 3.0 x16 low-form factor dimensions • Passive heat sink solution • Complies with the mechanical specifications given in the PCI Express Card Electromechanical Specification, Revision 3.0
Security	
Security	• Provides hardware acceleration for industry standard security algorithms for VPN, SSL/TLS, IPSec and firewall applications
Symmetric (Bulk) Cryptography	• Ciphers (AES, 3DES/DES, RC4, KASUMI, ZUC, Snow 3G) • Message digest/hash (MD5, SHA-1, SHA-2, SHA-3) and authentication (HMAC, AES-XCBC) • Algorithm chaining (one cipher and one hash in a single operation) • Authenticated encryption (AES-GCM, AES-CCM) • AES-XTS
Asymmetric (Public Key) Cryptography	• Modular exponentiation for Diffie-Hellman (DH) • RSA key generation, encryption/decryption and digital signature generation/verification • DSA parameter generation and digital signature generation/verification • Elliptic Curve Cryptography: ECDSA, ECDHE, Curve25519
Compression	
Provider hardware acceleration for Industry Standard compression/decompression algorithms for Network Bandwidth and Storage Applications	• DEFLATE: LZ77 compression followed by Huffman coding, with a gzip or zlib header • Stateless Compression and Decompression
Wireless	
Provides hardware acceleration for Common Mobile Wireless Standards including 5G	• KASUMI, Snow 3G and ZUC in encryption and authentication modes - ZUC/ 128-EEA3 Cipher - ZUC/128-EIA3 Wireless MAC - SHA3-256

Performance Specifications

Category	8960	8970
Performance Symmetric Ciphers AES128-CBC AES-XCBC	51Gbps @4KB Packet	103Gbps @4KB Packet
RSA2K Key Decrypts	100K Ops/s	100K Ops/s
Verified Compression Level 1 Dynamic Deflate	37Gbps @64KB	66Gbps @64KB
Decompression Level 1 Dynamic Deflate	54Gbps @64KB	160Gbps @64KB

Specifications

Performance	Up to 100Gbps hardware acceleration
RSA ops/sec	100K decrypt
SR-IOV Virtual Functions	3 Physical / 48 Virtual
Connection	Low Profile PCIe Gen3 x8 or x16
Operating Temperature (Ambient)	0 °C to 55 °C (32 °F to 131 °F)
Storage Temperature (Ambient)	-40 °C to 70 °C (-40 °F to 158 °F)
Power (maximum)	8960: ~21W 8970: ~23W
Airflow	8960: 200 LFM @ 55 °C ambient 8970: 275 LFM @ 55 °C ambient
Storage Humidity	90% non-condensing relative humidity at 35 °C
Dimensions (H x L)	2.7" x 6.6"

Product Order Code

Configuration	MM#	Product Code
8960	999L51	IQA89601G2P5*
	99AHH4	IQA89601G3P5
8970	999L52	IQA89701G2P5*
	99AHH3	IQA89701G3P5

*Lewisburg connectivity to SMBus is disabled

Safety and Regulatory

Safety	UL/CSA 60950-1-07, 2nd Edition + amendment 1, dated 2011/12/19. The Bi-National Standard for Safety of Information Technology Equipment, EN60950-1: 2006+A11:2009+A1:2010+A12:2010+A2:2013
Regulatory	• USA & Canada FCC, 47 CFR Part 15, Class A digital device (USA) ICES-003, Class A (CAN) • EN 55032 EN 55032: 2015 Class A Radiated and Conducted Emissions requirements for European Union • EN-55024 EN 55024: 2010 Immunity requirements for European Union (EU) • Korea • KN32 Radiated and Conducted Emissions • KN35 Immunity • Australia/New Zealand AS/NZS CISPR 22:2009 + A1:2010 Class A and CISPR 32:2015 for Radiated and Conducted • Emissions requirements • CE Passes CE specification and receives the CE Mark • Japan VCCI:2014-04 Class A Radiated and Conducted Emissions requirements • Taiwan BSMI CNS13438: 2006 (complete) Class A Radiated and Conducted Emissions requirements • EU REACH Complies with European REACH directive • EU WEEE Complies with European WEEE directive • EU RoHS Complies with European RoHS directive • China RoHS Complies with China RoHS directive

Warranty

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

Product Information

For information about Intel® QuickAssist Technology visit:
intel.com/quickassist

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