Agate7424

Modular 19' Rack Mounting Industrial Security Ethernet Gateway

Preliminary

- Support data packets forwarding in a line rate with a tiny latency (under 20 us).
- Support data packet filter based on 5-tuples, 7-tuples, 12-tuples.
- Support data packet filter based on user-defined rules.
- Support Deep Packet Inspection(DPI), up to 250 bytes.
- Support white list or black list.
- Support Virtual Private Networks(VPN), including IPSec VPN \ SSL VPN \ L2TP VPN.
- Support secondary development interface to protect private protocol against leakage.
- Supporting session based traffic statistics and traffic anomaly detection.
- Supporting redundant ring protocol: DRP, DT-ring.

>> Overview

Agate7424 is a modular designed 19' Rack mounting industrial security Ethernet gateway, which enables flexible for expansion. It is positioned in the Industrial Control Networks under Industrial Control Systems (ICS) to provide a Cyber Security Solution in Utility, Steel, Oil & Gas and many other industrial applications. A wide variety of security features are supported on Agate7424 to protect ICS from source address cheat, DOS and many other attacks. As it supports "Deep Packet Inspection (DPI)", Agate7424 can work as an Industrial Firewall thereby recognizing industrial protocol frames and forward them safely . Agate series Industrial Ethernet Security Gateway design is based on high performance FPGAs. Up to 1K data packet filtering rules can be executed in parallel, and the data packets can be handled at line rate with a negligible latency of under 20us. The requirements of ICS in both real time and security can be met at the same time by deploying Agate series Industrial Security Ethernet Gateway

>> Software Functions

Redundancy

Supporting DT-Ring protocol family
Supporting DRP protocol family
Supporting link aggregation control protocol (LACP)

Multicast

Supporting IGMP snooping
Supporting static multicast

Security

Supporting IEEE 802.1x
Supporting HTTPs/SSL
Supporting SSH

Supporting Radius
Supporting Tacacs+
Support Multi-level user passwords secures
Supporting white list
Supporting black list
Supporting IP Address and MAC Address Binding
Supporting MAC Address Binding
Supporting Deep Packet Inspection(DPI)
▼ Supporting data packet filter based on 5-tupls
▼ Supporting data packet filter based on 7-tupls
▼ Supporting data packet filter based on 12-tupls
▼ Supporting data packet filter based on user-defined rules
▼ Supporting built-in industrial protocols
    ※ Modbus TCP
    ※ IEC61850 (GOOSE \ SV \ MMS)
    ※ ETHERNET/IP
    ※ ETHERCAT
    ※ POWERLINK
    ※ PROFINET
    ※ OPC
    ※ IEC-104
    ※ DNP3
Supporting session based traffic statistics and traffic anomaly detection
Supporting IP Sec VPN
Supporting SSL VPN
Supporting L2TP VPN

Administration

Supporting to be managed via console,telnet,WEB,SNMPv1/v2c/v3
Supporting upgrading via FTP / TFTP
Supporting alarm output triggered by IP/MAC conflict, power failure, temperature, port link down
Supporting System logging
Supporting secondary development interface
Supporting link layer topology discovery via LLDP
Supporting port mirror

⫸ Product Specifications

Technical Specifications

Standards
- ▼ IEEE 802.3i (10Base-T)
- ▼ IEEE 802.3u (100Base-TX)
- ▼ IEEE 802.3ab (1000Base-T)
- ▼ IEEE 802.3x (Flow Control)
- ▼ IEEE 802.1p
- ▼ IEEE 802.1D (LAN)
- ▼ IEEE 802.1x
- ▼ IEEE802.1Q(VLAN)
- ▼ IEEE802.1AB(LLDP)
- ▼ IEEE802.3ad(LACP)
- ▼ IEC62439-6(DRP)

Switch Properties

Packet buffer	8 Mbit
Packet forwarding rate	10.267Mpps
Switching delay	< 20 μs

Interface

Console port	Mini USB
Alarm port	5-Pin 5.08 mm-spacing plug-in terminal block
Outband Management Port	10/100/1000Base-T(x) RJ45 Port

Indicator

LED
- ▼ Alarm indicator: Alarm
- ▼ Run indicator: Run
- ▼ Power indicator: PWR1, PWR2
- ▼ Interface indicator: Link/ACT
- ▼ Interface rate indicator: Speed

Indicators in the rear panel
- ▼ Interface indicator: Link/ACT
- ▼ Interface rate indicator: Speed

Power Requirements

Input voltage
- ▼ 24DC (18-36 VDC)
- ▼ 48DC (36-72 VDC)
- ▼ 220AC/DCW (85-264 VAC/77-300 VDC)

Access terminal
- ▼ 5-Pin 5.08 mm-spacing plug-in terminal block

Power	< 60W

Overload protection	Supported
Protection for reverse connection	Supported
Redundancy protection	Supported

Physical Characteristics

Shell	Metal material
Heat dissipation mode	Natural cooling, Fanless design
Protection grade	IP40
Dimensions	440mm×44mm×365mm(W×H×D)
Weight	< 5Kg
Installation mode	19' rack mounting

Environmental Limits

Operating temperature	-40°C -+85°C
Storage temperature	-40°C -+85°C
Relative humidity	5%-95% (non-condensing)

Quality Assurance

MTBF	300,000 hrs
Warranty period	5 years

Approvals

CE (Pending)
FCC(Pending)
Evaluation Assurance Level - EAL3 (Pending)
For the latest dynamics of the product, visit the website of Kyland.

Industry Standard

EMI
- ▼ FCC CFR47 Part 15, EN55022/CISPR22, Class A

EMS
- ▼ IEC61000-4-2(ESD) ±8 kV (contact), ±15 kV(air)
- ▼ IEC61000-4-3(RS) 10 V/m (80 MHz-2 GHz)
- ▼ IEC61000-4-4(EFT) Power Port: ±4 kV; Data Port: ±2 kV
- ▼ IEC61000-4-5(Surge) Power Port: ±2 kV/DM, ±4 kV/CM; Data Port: ±2 kV
- ▼ IEC61000-4-6(CS) 3 V (10 kHz-150 kHz); 10 V (150 kHz-80 MHz)
- ▼ IEC61000-4-8 (power frequency magnetic field) 100 A/m(cont.), 1000 A/m(1s-3s)
- ▼ IEC61000-4-9 (pulse magnetic field) 1000 A/m
- ▼ IEC61000-4-10 (damped oscillation) 100 A/m
- ▼ IEC61000-4-12 (oscillatory wave) 2.5 kV/CM, 1 kV/DM
- ▼ IEC61000-4-16 (common-mode conduction) 30 V(cont.), 300 V(1s)

Mechanical standards
- ▼ IEC60068-2-6 (vibration),
- ▼ IEC60068-2-27 (impact),
- ▼ IEC60068-2-32 (free fall)

⫸ Mechanical Drawing
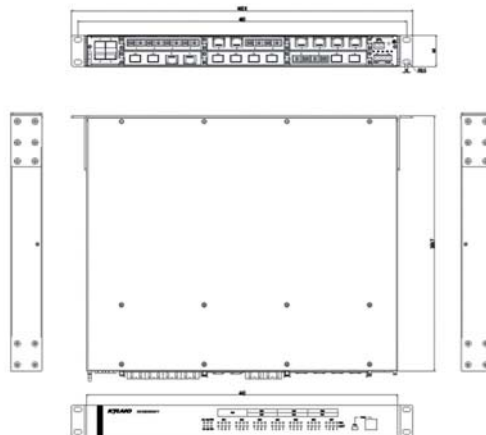
Ordering Information

Chasis	Agate7424-MB-PS1-PS2
PS1	
HV	220AC/DCW (85-264 VAC/77-300 VDC)
L1	48DC (36-72 VDC)
L3	24DC (18-36 VDC)
PS2	
HV	220AC/DCW (85-264 VAC/77-300 VDC)
L1	48DC (36-72 VDC)
L3	24DC (18-36 VDC)
None	No secondary power supply

Interface Module	
Slot 1	**SM7.1-Ports-1U**
Ports	
4GX	4x1000Base-X, 10/100/1000Base-T(X) SFP port, 1U
4GE	4x10/100/1000Base-T(X) RJ45 port, 1U
2GX2GE	2x1000Base-X, 10/100/1000Base-T(X) SFP port; 2x10/100/1000Base-T(X) RJ45 port, 1U
Slot2-Slot7	**SM7.1-Ports-Connector-0.5U**
Ports	
4S	4x100Base-FX, single-mode fiber port, 0.5U
4M	4x100Base-FX, multi-mode fiber port, 0.5U
2S2T	2x100Base-FX, single-mode fiber port; 2x10/100Base-T(X) RJ45 port, 0.5U
2M2T	2x100Base-FX, multi-mode fiber port; 2x10/100Base-T(X) RJ45 port, 0.5U
4T	4x10/100Base-T(X) RJ45 port, 0.5U
Connector	**100M fiber port specifications**
SC05	SC connector, multi-mode, 1310nm, 5km
ST05	ST connector, multi-mode, 1310nm, 5km
FC05	FC connector, multi-mode, 1310nm, 5km
SC40	SC connector, single-mode, 1310nm, 40km
ST40	ST connector, single-mode, 1310nm, 40km
FC40	FC connector, single-mode, 1310nm, 40km
SC60	SC connector, single-mode, 1310nm, 60km
SC80	SC connector, single-mode, 1550nm, 80km

Accessories

Accessory Model	**Accessory Description**
DT-FCZ-RJ45-01	Single-port RJ45 dust plug
DT-XL- Mini USB-USB-2m	USB management cable, Mini USB to USB, 2m