



 **5G**

 **WiFi 6**

 **LPWAN**

 **IoT**

ANS

Advanced Network Solutions

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EVERYTHING GOES TO SOFTWARE.....EVEN YOUR NETWORK

SD-WAN

Software Defined Wide Area Network

When network technology goes to software, here comes SDN, software-defined networking, which separates the data and control planes to make the task of network administration become much more dynamic and flexible. SD-WAN is a software-based approach to wide area networks — a virtual WAN based on SDN technology. It can be used to connect any application across multiple network types, such as MPLS, 4G, 5G, and broadband internet. Via a central SD-WAN controller and its user-friendly interface, where users can set up the connectivity application and define security policies across all available network connections at every site.

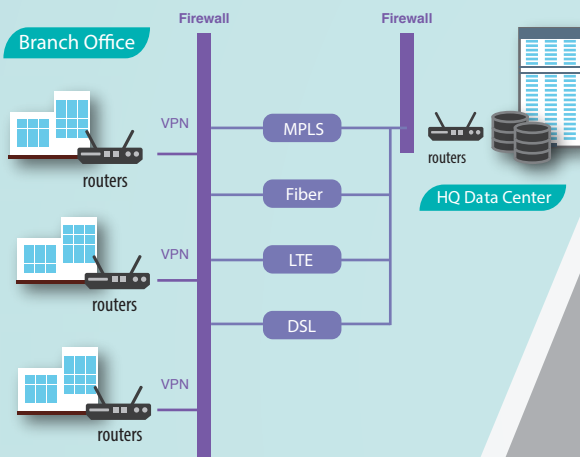
Nowadays, enterprises face two major challenges in IT-related applications. One is the low tolerance for latency which requires extremely high performance, and the other is processing the huge number of data. These requirements make traditional WAN that transmits data and transactions through data centers more difficult. SaaS, other cloud services, and more mobile devices also make traditional routers overburdened.

With SD-WAN, its huge advantages include enhanced global availability, visibility, scalability, easy control, and performance. It can not only directly connect branches through the public Internet, but also securely connect cloud applications and services. When necessary, it can also support a secure connection via MPLS back to the core data center.

WIDE AREA NETWORK REVOLUTION

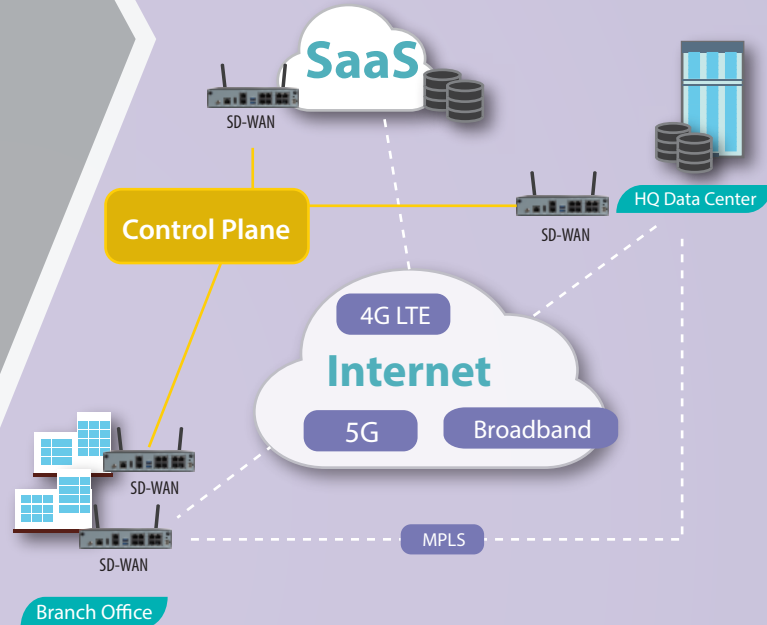
Before

The traditional wide area network relies on the hardware devices and its system platform. It is inconvenient to communicate between different devices because of the need to support multiple protocols, more consideration is required, and manual configuration is required to maintain consistency. Enterprises rely on the use of MPLS in connecting branch offices, but various services are very expensive and have poor migration and expansion capabilities.



Now

SD-WAN can help enterprises using relatively low-cost Internet lines (such as ADSL, 4G, etc.) to alleviate the situation of tight bandwidth, unified management of all external lines.



MAIN ACHIEVEMENTS OF SD-WAN DEPLOYMENT

Reduced MPLS and Overall Cost

SD-WAN will arrange the connection by LTE, MPLS, ADSL/Cable, or 4G router based on different environments and priorities. Under this structure, the overall flow of MPLS goes down then the cost goes down. Besides, SD-WAN works through software to control all the network; it's easier to maintain and lower down the operational cost.



Increased Network Security

SD-WAN can not only protect data during transfer from end to end but also control and monitor the flow of the internet, avoiding internet crash.



Adoption of Cloud-Based Service

As more and more Enterprises use SaaS services such as Salesforce and Office 365, SD-WAN can provide high quality and low rescue connection to SaaS/Cloud environment.



Visualization Management

As SD-WAN represents software define networking, it has its own software interface to monitor and manage the operation status of the entire networking.



WAN Optimization

As before, the enterprise didn't prefer to connect the data center to the subsidiary via internet because the quality of internet is not easy to control. With SD-WAN, it can provide the internet much easier to control, monitor, switch between several routes or share the bandwidth to make sure the quality of connection.



Easy to Deploy and Manage

SD-WAN has a software interface. Once any issue occurs, the controller can find out the issue at the first moment, and helps reduce the time to detect the issue and also the cost for maintenance.



UBIQUITOUS NETWORKING

IoT

In recent years, more and more objects will be connected to the cloud through the Internet, forming so-called "Internet of Things". Due to the rapid expansion of IoT devices and computing at the edge, billions of IoT devices are in the mesh edge environment and connected to each other; any device may become the weakest link out of security concern. Enterprises now face the challenges of how to effectively manage these end devices, remote deployment, and control security. So, to deal with this challenge, there will be some fundamental changes in the structure and management of the network.

5G

5G will be the major wireless WAN option, and we believe that this transition will be a key driver for SD-WAN adoption. The wireless WAN adoption requires superior security and high bandwidth.

This new communication has at least 10 times faster than 4G with lower latency, and the most advanced encryption technology and authentication features. These advantages of 5G lead itself as a prime choice for wireless SD-WAN use cases.

For the system design, we need to consider at least 6 antenna holes to support WiFi and 3G/4G/5G Networks; especially, the Gen 5th mobile network includes sub-6GHz and mmWave bands. When users install WiFi function and 5G module into the system, 2 of antenna holes could be used for WiFi and there are still four antenna holes that could support 5G sub-6GHz or mmWave MIMO function.



Wireless

With all the trends in networking, how could we fulfill the demands of **Low Latency, High Computing, High Bandwidth, More Connectivity, PoE Support, and IP Security?**

We bring you our answer:

ANS series, the Advanced Network Solutions

The sixth-generation WiFi technology, the new standard 802.11ax was named WiFi 6. The birth of Wi-Fi 6 will make wireless high-frequency transmission more efficient; in addition, because Wi-Fi 6 is a regional network, it can coexist with 5G wireless networks. Generally speaking, Wi-Fi signals can be divided into two frequency bands, 2.4GHz, and 5GHz. The former has a wide network reception range, but the network speed is slow; the 5GHz has a small reception range, but the network speed is high. However, with the advent of the new Wi-Fi 6 standard, which combines two frequency bands, 2.4GHz, 5GHz, it also incorporates features such as wide reception range and high network speed, which can meet our needs for high-speed networks at one time.

Wi-Fi 6

802.11ax

LPWAN

SigFox LoRa NB-IoT

Due to the characteristics of long-distance Internet of Things, Low Power Wide Area Network (LPWAN) technology has emerged. This technology includes features such as low power consumption, low cost, low speed, large coverage, and supports a large number of features. In the case of only providing batteries, a huge number of devices can continuously transmit key small amount of data to the monitoring center over long distance, and under the analysis of Big Data and Artificial Intelligence (AI), the traffic monitoring, real-time updating, emergency processing and other quality optimizing can be achieved. These non-traditional connectivity options will also be a factor for emerging use of wireless SD-WAN.



Operation

With many years of experience in networking and communication product development and familiarity with the market trends, we have launched the ANS standard series for SD-WAN applications. The ANS series is embedded with Intel Apollo lake and Denverton processors to meet different levels of application needs. In addition to hardware design supporting more ports and PoE functions, we also provide software APIs and Web tools to bring the turnkey solution to our customers.

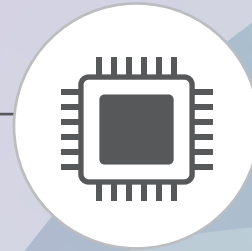


- Intel Apollo Lake processor / Intel Denverton processor
- Intel QAT accelerator
- Up to 12 GbE ports and 2x SFP 10GbE supported
- M.2 and mini-PCIe for Wireless communication: LTE, 5G
- Interface supporting LPWAN: LoRa, ZigBee, WiFi
- Optional PoE extended

ANS SERIES FEATURES

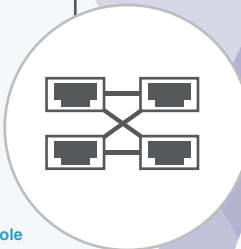
Intel Platform

With Intel CPU platform, ANS series implements Intel Apollo Lake CPU with low power consumption and Intel Denverton CPU with high computing efficiency to fulfill the requirements from edge to server. And through the complete software support of the Intel ecosystem, it improves the support of third-party software applications.



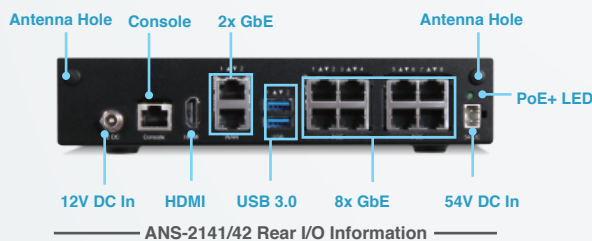
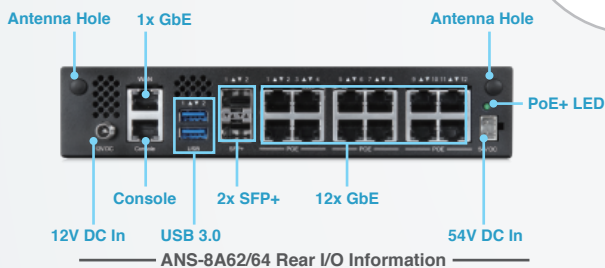
DATA COM

In 1/2 width of the cabinet, it provides up to 12 high-density Ethernet GbE Ports. What's more, 2x 10GbE Fiber Ports are equipped on Intel Denverton system to support more uplink network bandwidth.



ANS-8A62/64

- Intel Atom® C3758(8C)/ C3558(4C) Processor (Denverton)
- 2x 10Gb SFP+, 1x GbE RJ45, 12x GbE RJ45 (with PoE+ support by SKU)
- 1x RJ45 Console, 2x USB3.0
- 2 x DDR4 2400/2133 MT/s ECC SO-DIMM up to 32GB
- 1x TPM2.0(on-board)
- 1x Mini-PCIe(PCIe/ USB2.0), 1x M.2 Key-B Slot(PCIe/ USB3.0), 1x SATADOM
- Design ready for 5G and WiFi 6 (802.11ax)
- Compact design 2 in 1U rackmount

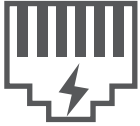


Wireless

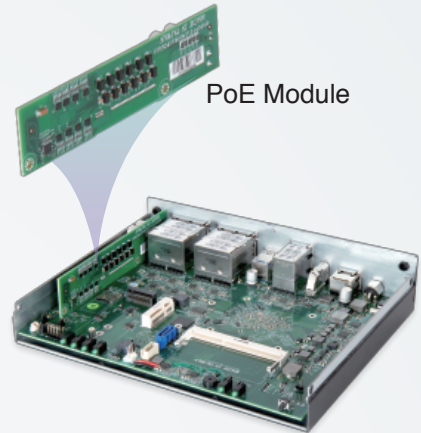
In the system, in addition to the physical Copper & Fiber and Ethernet connection, it can also support rich wireless transmission interfaces such as WiFi, 3G, LTE module and LPWAN: LoRa, ZigBee. In the M.2 slot, PCIe and USB3.0 signals are reserved to directly support the future 5G module to improve the wireless transmission capability of the system.



IoT Solution



With the development of AI under mature IoT networks, edge-computing with powered devices enables us to implement the on-site solution and process the data in short time. ANS series provides 8-12 LAN ports, each of which can be upgraded as PoE. Not only does this scalability facilitate the construction of AIoT, but it also helps achieve the application of edge-computing in a cost-effective way.



PoE Module



ANS-2141/42

- Intel Atom® x5-E3940(4C)/ E3930(2C) Processor (Apollo Lake)
- 2x GbE RJ45, 8x GbE RJ45 (with PoE+ support by SKU)
- 1x RJ45 Console, 1x HDMI, 2x USB3.0
- 1x DDR3L 1866/1600/1333 MT/s ECC SO-DIMM up to 8GB
- 1x eMMC 16GB(on-board), 1x TPM2.0 (on-board)
- 1x Mini-PCle(PCle/ USB2.0), 1x M.2 Key-B Slot(PCle/ USB3.0), 1x SATA III, 2x micro SIM
- Design ready for 5G and WiFi 6 (802.11ax)
- Compact design 2 in 1U rackmount



Smart Design

Compare to the solutions with equivalent level in the market, ANS series is highly competitive with its up-to-12 LAN ports support. Dimension-wise, its compact design in size makes it feasible to configure two ANS devices in each rack unit.



Software & IPsec

For the IoT solution, the software development process can be shortened while maintenance efforts can be drastically reduced with our PoE API and GUI.

To enhance the security of all types of infrastructures, Intel features DPDK and QAT in her latest product selections. As an experienced solution provider, we also can help our customers to accomplish the development via those resources.

WORK SCENARIO

With ANS compact design, a 1U rackmount can accommodate 2 devices at a time. We provide greater flexibility in system combination and matching. You can easily make trade-offs and increase the performance of the CPU platform, and complete the deployment of SD-WAN with the highest CP value.

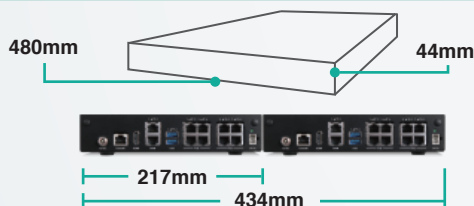


1U Rackmount

As small Server-grade, 2 systems expansion support 24 LAN ports

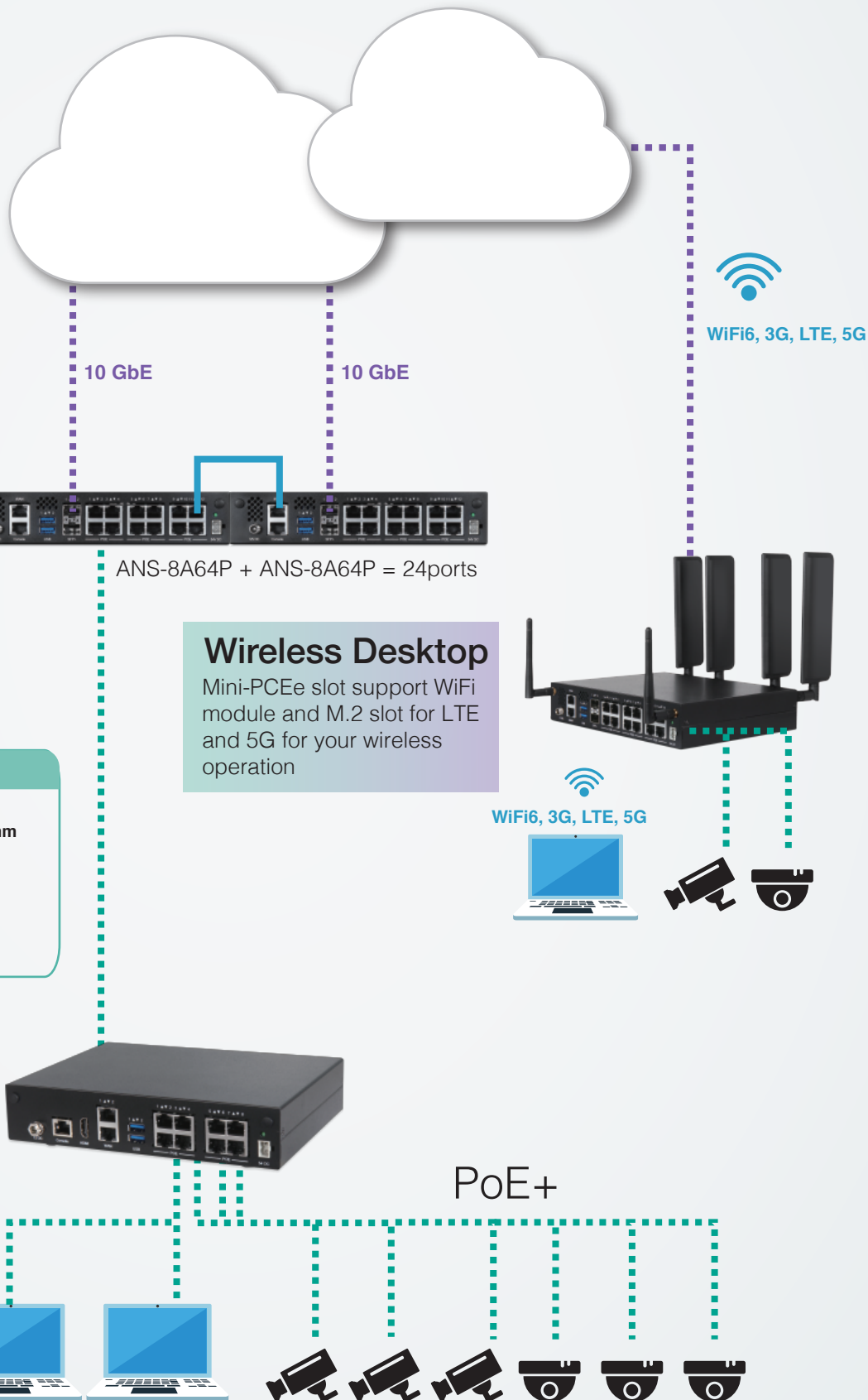


1U Rackmount Chassis



Half-Rack Stand Alone

Easy deploy and suitable for SOHO, Small and Medium Enterprises



ANS SOFTWARE SUPPORT

Intel QAT

The ANS series adopts the security-based Intel platform, Denverton CPU. With its built-in Intel® QAT (Quick Assist Technology) as well as Intel's free API and driver packages, it provides all developers a software-enabled foundation for their security, authentication, and compression. Most significantly, it optimizes the solution's computing performance and efficiency upon the standard platform. With Intel QAT, that also includes symmetric encryption and authentication, asymmetric encryption, digital signatures, RSA, DH, ECC, and lossless data compression.

Data Plane Development Kit (DPDK)

DPDK can drastically improve the efficiency of data packet processing and network traffic, which provides Data-tier Applications (DAC) more sufficient time to deal with information. Meanwhile, the hardware capacity can be utilized and allocated in a more agile and desirable way if DPDK goes with Open SSL or Hardware Engine during the development process. In addition to the source code from Intel, we also offer our users the DPDK installation guidance to better their learning curves and even assist them to build a user-friendly DPDK environment.

Open vSwitch

Open vSwitch(OVS) is adopted to better configure, manage, and maintain the network. Meanwhile, OVS also supports the connection of OpenFlow and SDN controller, which allows users to flexibly deploy virtual machines and optimize the development of SDN and NFV. What's more, with our Open vSwitch installation guidance and RESTful API package, you can build your own Web remote control networking with multiple ANS devices in a more efficient manner.



PoE API

With our API guidance and sample code, users can control each PoE port and respectively monitor the status via our API such as voltage, current, power, etc. Plus, warning signals can also be sent under particular defined occasions to prevent any emergency.



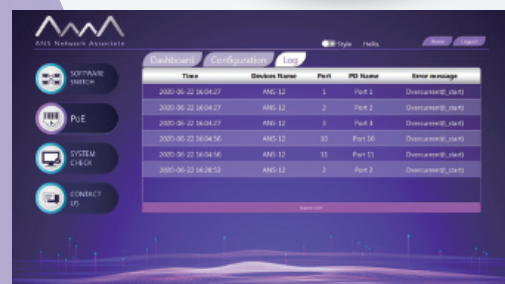
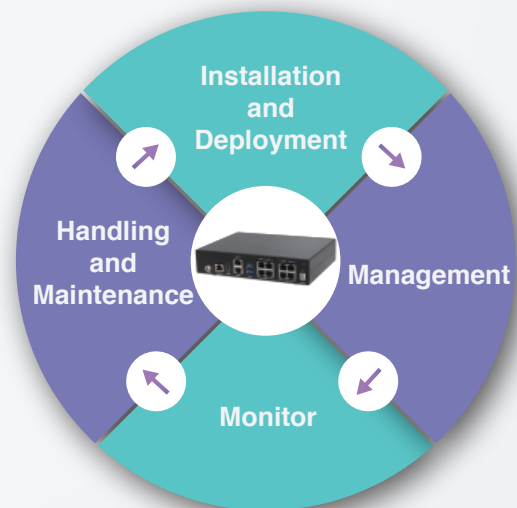
ANS Network Associate

In ANS series products, you can use our web tool assistant AnnA, ANS Network Associate, to manage your system.

AnnA is a user friendly Web tool with novel-designed interface, and she can help you manage and deploy all ANS machines through easily maintain user interface.

Through AnnA software, you can conduct setting for PoE or software switch, meanwhile, she can help you monitor latest status and check the health of machine by real-time updating and also provide complete log report.

AnnA, as a good associate for IT staff aim to make you an easier way to manage and handle all conditions!



ANS APOLLO LAKE SERIES SPECIFICATION

Model Name	<i>ANS-2121</i>	<i>ANS-2141</i>	<i>ANS-2141P</i>	<i>ANS-2142</i>	<i>ANS-2142P</i>
	System				
Processor	Intel® Apollo Lake E3930(2C)			Intel® Apollo Lake E3940(4C)	
BIOS	AMI				
Memory	1x DDR3L 1866/1600/1333 MT/s ECC SO-DIMM up to 8GB				
Ethernet	6 x GbE RJ45 RTL8111H	10x GbE RJ45 RTL8111H			
Expansion	- 1 x Half-size Mini-PCIe slot with PCIe and USB2.0 signals - 1 x M.2 Key-B slot with PCIe and USB3.0 signals. - 2 x SIM slot				
Security	TPM 2.0				
Storage	- 1x eMMC 16GB on-board - 1x SATA III port for 2.5” HDD/SSD or SATADOM				
I/O Interface					
Console	1 x RJ45				
USB	2 x USB 3.0				
Display	1x HDMI, resolution up to 4Kx2K@60Hz				
Ethernet	6 x RJ45 GbE	10 x RJ45 GbE			
PoE+ (Optional)	4 x RJ45 GbE	8 x RJ45 GbE			
Antenna	6 x SMA Antenna holes for WiFi or LTE/5G module				
Mechanical					
Dimension	217 (W) X 168 (D) X 44 (H) mm				
Weight	3.5Kg				
Power Adapter					
System	40W Power Adapter, 110-220V AC input, 12V DC output				
PoE+	270W Power Adapter, 90-264V AC input, 54V DC output (PoE+ Model only)				
Environment					
OP Temp.	0°C ~ 40°C, 10 ~ 90% RH				
Storage Temp.	-10°C ~ 70°C, 10 ~ 95% RH@55°C				
Certification	CE/FCC Class A				

ANS DENVERTON SERIES SPECIFICATION

Model Name	<i>ANS-8A62</i>	<i>ANS-8A62P</i>	<i>ANS-8A64</i>	<i>ANS-8A64P</i>
System				
Processor	Intel® Denverton C3558(4C)		Intel® Denverton C3758(8C)	
BIOS	AMI			
Memory	2 x DDR4 2400/2133 MT/s ECC SO-DIMM up to 32GB			
Ethernet	- 12 x GbE RJ45 (RTL8111H), 1x GbE RJ45 (Marvell 88E1514) - 2 x SFP+ (From Intel Denverton)			
Expansion	- 1 x Half-size Mini-PCle slot with PCIe and USB2.0 signals - 1 x M.2 Key-B slot with PCIe and USB3.0 signals. - 1 x SIM slot			
Security	TPM 2.0			
Storage	1 x SATA III Connector for SATADOM			
I/O Interface				
Console	1 x RJ45			
USB	2 x USB 3.0			
Ethernet	- 13 x RJ45 GbE - 2 x SFP+ 10GbE			
PoE+ (Optional)	270W power support up to 12x GbE RJ45 PoE+			
Antenna	6 x SMA Antenna holes for WiFi or LTE/5G module			
Mechanical				
Dimension	217 (W) X 168 (D) X 44 (H) mm			
Weight	3.5Kg			
Power				
System	65W Power Adapter, 110-220V AC input, 12V DC output			
PoE+	270W Power Adapter, 90-264V AC input, 54V DC output (PoE model only)			
Environment				
OP Temp.	0°C ~ 40°C, 10 ~ 90% RH			
Storage Temp.	-10°C ~ 70°C, 10 ~ 95% RH@55°C			
Certification	CE/FCC Class A			