Computing Resource Guide for Anapaya Appliance Platforms

Version 1.9

0.1. Table of Contents

Platform

The Anapaya appliance can be installed either on a bare-metal hardware platform, or on a virtualized platform. Anapaya qualifies a variety of hardware platforms and virtualized environments to be used as a base to run Anapaya CORE, EDGE or GATE software appliances. This document can be downloaded as a PDF

1. Evaluation of Platforms

Not all the platforms handle the network specific processes used by software routers the same way. Since the Anapaya software appliance is at the core of critical communication services for important customers and partners, we share information about the configuration that are supported, tested or expected to work, but also on configuration or components that failed the qualification tests. The key factor which often decides if a platform is supported boils down to the network interface card (NIC) and the corresponding available drivers.

1.1. Classification of Platforms

	Supported	Tested	Expected to work	Not supported
The Anapaya software has been tested	Yes	Yes	No	Yes, failed
Integrated in Anapaya's quality assurance pipeline	Yes	No	No	No
Performance tests are conducted	Yes	No	No	No
Documented installation procedure	Yes	No	No	No
Anapaya support level	Standard	Best effort	Best effort	No

1.2. Quality Assurance Pipeline and Software Support Level

Anapaya CORE, EDGE and GATE software license subscriptions include the software maintenance and support. When a platform configuration is qualified by Anapaya and integrated in its quality assurance program:

- The corresponding configuration is hosted in Anapaya's lab.
- All the new software releases are tested on it.
- Eventual adaptations are made in the software to optimize the performance.

Therefore, Anapaya can offer the highest level of software support for these platform configurations. When a customer decides to use another type of platform configuration, Anapaya cannot integrate it in its quality assurance pipeline. Therefore, even if the software runs properly, it cannot be guaranteed over time and the responsibility for the qualification of the new releases lies with the customer.

However, certain customers have special requirements (e.g., hardened hardware, high performance appliances, specific uCPE etc.) which are not covered by Anapaya's certification roadmap and need to get the highest possible level of software support. Through its hardware certification program, Anapaya can qualify the specific configuration, potentially tune the performance, and includes it in the quality assurance pipeline. The configuration then becomes officially supported. Inquiries about the hardware certification program can be sent to cse@anapaya.net .

2. Supported Platforms

The following hardware platforms have been tested and are integrated in Anapaya's standard quality assurance pipeline and all the new releases are proactively tested on it.

2.1. Standard Appliance Hardware Platforms

These appliance platforms can generally meet all the needs and they are currently distributed by Anapaya in Switzerland.

Type	Family	Comments
S-Type Lanner	L-1515B-4C-8E-64M-EU L-1515B-4C-8E-128M-EU	EDGE up to 1Gbit/s
L-Type SuperMicro	SYS 110D-8C-FRAN8TP-OTO-32	CORE, EDGE or GATE up to 25Gbit/s Dual power-supply 2x16GB memory Up to 6x SFP28
XL-Type SuperMicro	SYS 11OD-16C-FRAN8TP-OTO-47	CORE, EDGE or GATE up to 100Gbit/s Dual power-supply 2x16GB memory Up to 2x SFP28 & 2x QSFP28

2.2. Commodity Server Hardware Platforms

These appliance platforms can generally meet all the needs, but are not distributed by Anapaya.

Type	Family	Comments
SuperMicro SYS-1019D	SYS-1019D-14CN-RAN13TP+	CORE, EDGE or GATE up to 10Gbit/s Dual power-supply 2x16GB memory

Type	Family	Comments
HPE DL380 G11	HPE ProLiant DL380 Gen11	CORE, EDGE or GATE up to 25Gbit/s Dual power-supply 4x32GB memory

2.3. Virtual Networking Function (VNF) Hardware Platforms

Type	Family	Hypervisor Version	Comments
Extreme VSP4900	Virtual Services Platform	VSP Operating System Software Build 8.10.1.0	
Extreme VSP8400	Virtual Services Platform	VSP Operating System Software Build 8.10.1.0	
Silicom uCPE	Ekinops IA3003	OneOS-OVP-X86_pi2-6.8.2m1_3.5.3.19	EDGE up to 1Gbit/s
Extreme Networks Universal Compute Platform (UCP)	1130c	UCP-05.05.01.0029-1	EDGE up to 1Gbit/s
Extreme Networks Universal Compute Platform (UCP)	4120C	UCP-05.04.01.0018-1	EDGE up to 40Gbit/s

2.4. Virtualized Platforms

Type	Family	NIC Requirements	CPU
Proxmox	KVM	virtio or SR-IOV	performance depends on vCPUs pve-qemu-kvm: 8.1.5-5
Microsoft	Azure IaaS	accelerated-networking	performance depends on vCPUs
Amazon	AWS IaaS	enhanced networking	performance depends on vCPUs
Anexia	kmv based service	performance depends on NIC	performance depends on vCPUs

2.4.1. Sizing recommendation for virtualized environments

Refer to the General Parameters and Specific Parameters in the Expected to work configurations section for sizing recommendations of the VMs.

3. Tested Platforms

The following configuration are being used by current customers / partners, and are reported to work. However, no proactive tests or qualification of new releases are conducted on it.

Note

- All the selected components must be supported by the Ubuntu 22.04 Linux distribution.
- Potential support for configurations in this category is not guaranteed, can only be provided best effort, and is charged at Anapaya's standard hourly rate.
- Anapaya optionally offers a hardware qualification service, especially valuable for configuration that may be massively deployed (e.g., a uCPE or whitebox), or for high performance installations.

3.1. Other Server Hardware Platforms

Type	Family	NIC	Comments
Lanner	L-1515B-4C-8E-64M-C1-EU	I350,X553 1GbE	EDGE up to 1Gbit/s with LTE
HPE Proliant	DL380 Gen10	E810-XXV	EDGE/CORE up to 20-100Gbit/s High throughput with specific NICs only
Dell	Dell PowerEdge R750	n/a	CORE up to 10Gbit/s
Cisco	UCS C240	n/a	CORE up to 10Gbit/s

3.2. Virtualized Platforms

Type	Family	NIC Requirements	CPU
VMware	ESXi	paravirtualized NIC or SR-IOV	vCPU must be dedicated

3.3. VNF Hardware Platforms

Type	Family	Comments
Juniper	NFX 250	EDGE up to 1Gbit/s

4. Expected to work configurations

For reasons that may be entirely understandable, some customers or partners may choose to select configurations that are neither qualified by Anapaya nor tested by their peers. This section provides guidance to select configuration that may work.

Note

- All the selected components must be supported by the Ubuntu 22.04 Linux distribution.
- Potential support for configurations in this category is not guaranteed, can only be provided best effort, and is charged at Anapaya's standard hourly rate.
- Anapaya optionally offers a hardware qualification service, especially valuable for configuration that may be massively deployed (e.g., a uCPE or whitebox), or for high performance installations.

4.1. General Parameters

Configuration	Requirement
SR-IOV	yes
Storage – appliance	64GB (RAID1 recommended for higher MTBF)
Storage – local logs	200GB (RAID1 recommended for higher MTBF)
NIC for management	any
Dedicate interface for management	required

4.2. Specific Parameters

Estimated Maximum SCION throughput	Up to 1Gbit/s	Up to 10Gbit/s	Up to 25Gbit/s	Up to 100Gbit/s
CPU type and number of cores:	Intel Atom, Celeron: 4 cores AMD, Intel Xeon: 2 cores	Intel Xeon: 4 cores	Intel Xeon: 8 cores	Intel Xeon: 16 cores
Memory[1]	4GB	2x8GB	2x16GB	2x16GB

Estimated Maximum SCION throughput	Up to 1Gbit/s	Up to 10Gbit/s	Up to 25Gbit/s	Up to 100Gbit/s
NIC for SCION traffic	NIC supporting dpdk ixgbe such as 82598, 82599, X520, X540, X550, or i40e such as X710, X770	NIC supporting dpdk ixgbe such as 82598, 82599, X520, X540, X550, or i40e such as X710, X770	Intel E810/E823	Intel E810/E823
Anapaya CORE	Not recommended	yes	yes	Qualification of the server is highly recommended
Anapaya GATE	Not recommended	yes	yes	Qualification of the server is highly recommended
Anapaya EDGE	yes	yes	yes	Qualification of the server is highly recommended

Note

1. with CPUs supporting hyperthreading, 2x8GB (resp. 2x16GB) leads to higher performance than 1x16GB (resp. 1x32GB)

Note

The Anapaya software are expected to work with the following Bare-metal-as-a-service platforms:

- Equinix Metal
- latitude.sh

5. Explicitly not supported

The following components or configurations have been identified as not supported.

5.1. Network Interface Cards (for production interfaces)

- Mellanox ConnectX-3 and ConnectX-3 Pro
- Mellanox Connectx-4
- Mellanox Connectx-5
- Mellanox Connectx-6 or newer
- Non-Intel 1G cards (ie. Broadcom, Marvell, etc)

Note

For dedicated management ports, this is not relevant.

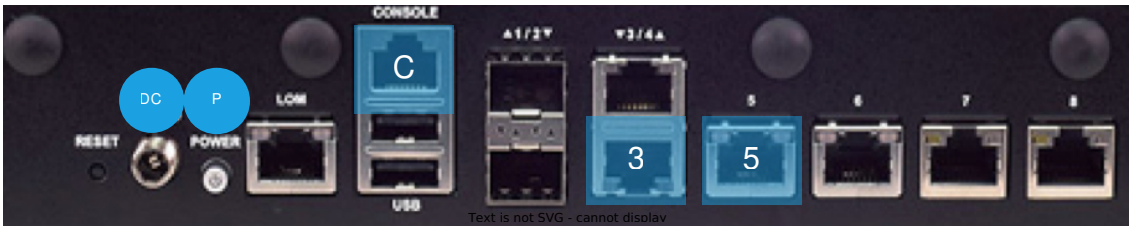
5.2. Virtualized environments with OS image mandated by the supplier

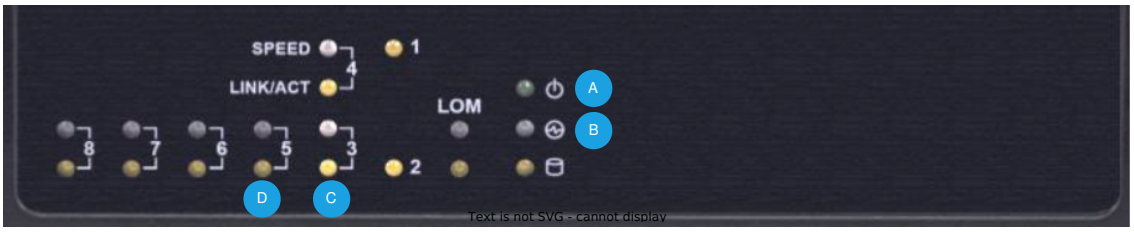
The Anapaya software comes into an appliance format, including the OS. Therefore, the software appliance cannot run on top of a supplier-provided OS. The Anapaya base image must be installed directly through the hypervisor.

6. Hardware devices distributed by Anapaya

6.1. S-type: device supporting the EDGE software up to 1Gbit/s of throughput

The S-type 1U desktop appliances aim to support Anapaya EDGE up to 1Gbit/s of SCION traffic. Equipped with a low consumption CPU, they come with 2x 1GbE hybrid (RJ45/SFP) WAN interfaces and with 4x 1GbE (RJ45) LAN interfaces, together with an external power supply. The appliance is provided with a 1-year advanced RMA warranty that can be extended to 3 years while ordering, and with an optional rack mount kit.



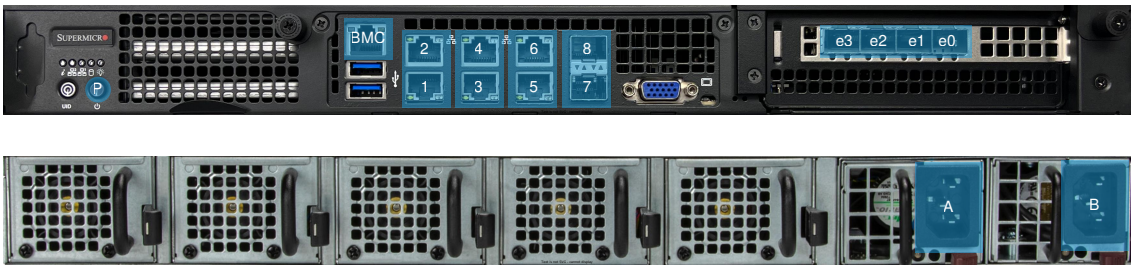


Item	Description
Anapaya SKU:	hw-appliance_S
Model:	Lanner NCA-1515
SCION throughput:	Up to 1Gbit/s (IMIX)
Network interfaces:	Front panel interfaces: - flexible 1GbE WAN interfaces (RJ45 or SFP) - 4x 1GbE LAN interfaces (RJ45)
CPU:	Intel® Atom C3000 (Denverton) 4 cores
RAM:	8GB
Storage:	64GB
Power supply:	External power adaptor, 60W – 100-240V
Power plugs:	Swiss & EU
Chassis:	Desktop appliance

Item	Description
Dimensions:	Width: 231mm, depth: 200mm, height: 44mm
Warranty:	1-year extended RMA (= early replacement)
Anapaya software:	Anapaya base image pre-installed
Available options:	Rackmount kit: hw-rackmount_s-type-01 Warranty extension to 36 months: hw-warranty_RMA_S_3y Single-mode or multi-mode SFPs

6.2. L-type appliance: for medium-sized POP or DC installations up to 25Gbit/s

The L-type 1U rackable appliances aim to support Anapaya CORE, GATE or EDGE up to 25Gbit/s of SCION traffic. Equipped with a high performance Intel Xeon CPU, they come with 6x 25G SFP28 network interfaces, and with 2x 10G and 4x 1G RJ45 network interfaces, together with a dual power supply to fit the datacenter standards. The appliance is provided with a 3-year advanced RMA warranty.

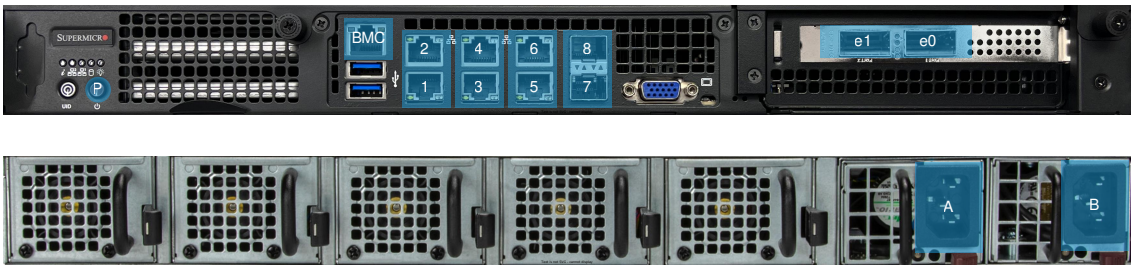


Item	Description
Anapaya SKU:	hw-appliance_L
Model:	SuperMicro sys-110d-8c-fran8tp with additional NIC
SCION throughput	Up to 25Gbit/s (IMIX)
Network interfaces:	Front panel interfaces: 6x 25G (SFP28). Supports 25G and 25/10G SFPs 2x 10G-BaseT (RJ45) 4x 1GbE (RJ45) – reserved for management
CPU:	Intel XEON 8 cores (D-2733NT – may change over time)
RAM:	2x 16GB
Storage:	2x 200GB
Power supply:	Integrated redundant power supply, 800W – 100-240V
Power plugs:	EU
Chassis:	1U rackmount
Dimensions:	Width: 437mm, depth: 399mm, height: 43mm, gross weight: 13.15 kg
Warranty:	3-year extended RMA (= early replacement)
Anapaya software:	Anapaya base image pre-installed

Item	Description
Available options:	Single-mode or multimode SFPs (SFP28)

6.3. XL-type: for high performance POPs (up to 100Gbit/s)

The XL-type 1U rackable appliances aim to support Anapaya CORE, GATE or EDGE up to 100Gbit/s of SCION traffic. Equipped with a high performance Intel Xeon CPU, they come with 2x 100G QSFP28 and 2x 25G SFP28 network interfaces, and with 2x 10G and 4x 1G RJ45 network interfaces, together with a dual power supply to fit the datacenter standards. The appliance is provided with a 3-year advanced RMA warranty.



Item	Description
Anapaya SKU:	hw-appliance_XL
Model:	SuperMicro sys-110d-16c-fran8tp with additional NIC
SCION throughput	Up to 100Gbit/s (IMIX) - /!\ tests in progress, results are not final.
Network interfaces:	Front panel interfaces: 2x 100G (QSFP28). 2x 25G (SFP28). Supports 25G and 25/10G SFPs 2x 10G-BaseT (RJ45) 4x 1GbE (RJ45) – reserved for management
CPU:	Intel XEON 16 cores (D-2775TE – may change over time)
RAM:	2x 16GB
Storage:	2x 200GB
Power supply:	Integrated redundant power supply, 800W – 100-240V
Power plugs:	EU
Chassis:	1U rackmount
Dimensions:	Width: 437mm, depth: 399mm, height: 43mm, gross weight: 13.15 kg
Warranty:	3-year extended RMA (= early replacement)
Anapaya software:	Anapaya base image pre-installed

Item	Description
Available options:	Single-mode or multimode SFPs (SFP, SFP+, QSFP28)

7. Revision history

Version	Date	Author	Description
1.2	30.03.2023	OML	Adding SuperMicro SYS-1019d + update of some requirements.
1.3	08.08.2023	OML	Update of the Extreme Networks software version
1.4	21.09.2023	OML	Reorganization of the structure + adding SYS-110D + sizing recommendation
1.5	24.11.2023	OML	Adding more details on the type of SFPs for L- and XL-type appliances
1.6	17.01.2024	OML	Correction of typos
1.7	30.04.2024	OML	Juniper appliance moved to “tested” + note on virtualized environments.
1.8	30.08.2024	Hendrik	Migrate the document to public documentation
1.9	11.11.2024	Hendrik	Adding Extreme 1130C and 4120C Universal Compute Platform (UCP)

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