

# Computing resources guide

## 1. Why a computing resource guide?

### 1.1. Classification of the computing resources

Not all the hardware devices 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 decided to transparently share information about the configuration that are supported, tested or expected to work, but also on configuration or components that failed the qualification tests.

	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	For some	No	No
Documented installation procedure	Yes	For some	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 subscriptions include the software maintenance and support.

When a computing 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 configurations.

When a customer decides to use another type of 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...) 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 qualifie the specific configuration, potentially tune the performance, and includes it in the quality assurance pipeline. The configuration then becomes officially supported.

## 2. Supported configurations:

The following configurations have been tested and are integrated in Anapaya’s standard quality assurance pipeline: all the new releases are proactively tested on it.

Type	Family	Comments
<b>Appliances</b>		
Lanner – S-type*	L-1515B-4C-8E-64M-EU L-1515B-4C-8E-128M-EU	EDGE up to 1Gbit/s
Extreme Networks	VSP 4900 or VSP 7400 running on VOSS v8.10.1	EDGE. Maximum throughput depends on the number of vCPUs dedicated to the EDGE VNF.
<b>Servers</b>		
SuperMicro	SYS-1019D-14CN-RAN13TP+, w/ 16GB memory	CORE, EDGE or GATE up to 10Gbit/s Dual power-supply
SuperMicro – L-type*	SYS 110D-8C-FRAN8TP-OTO-32 w/ 2x16GB memory and additional NIC AOC-S25GC-i4S	CORE, EDGE or GATE up to 25Gbit/s Up to 6x 25G optical ports. Dual power-supply
SuperMicro – XL-type*	SYS 110D-16C-FRAN8TP-OTO-47 w/ 2x16GB memory and additional NIC AOC-E810-2CQDA2	CORE, EDGE or GATE up to 100Gbit/s 2x 100G and 2x 25G optical ports. Dual power-supply
<b>Virtualized environments</b>		
vmware	ESXi	vCPU must be dedicated. vmxnet3 paravirtualized NIC is required or SR-IOV must be supported.
Amazon	AWS IaaS	EDGE or CORE. Performance depends on vCPUs and network interface.
anexia.com	vmware-based service	EDGE or CORE. Performance depends on vCPUs and network interface.

(\*) currently distributed by Anapaya in Switzerland. See below for the detailed description.

### Sizing recommendation for virtualized environments:

SCION throughput	100Mbit/s	1Gbit/s	10Gbit/s
Dedicated vCPU	2	2	4
SR-IOV	yes		
Memory	8GB	8GB	16GB
Storage – software appliance	> 20GB	> 20GB	> 20GB
Storage – if logs are kept local	100 - 200GB	100 - 200GB	100 - 200GB

Note that the virtualized service provider must be able to handle the full Anapaya software appliance. The appliance cannot be installed on top of provider’s OS image.

**3. Tested configurations:**

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

Type	Family	Comments
<b>Appliances</b>		
Lanner	L-1515B-4C-8E-64M-C1-EU	EDGE up to 1Gbit/s
Juniper	Juniper NFX 250	EDGE up to 1Gbit/s
<b>Servers</b>		
HPE Proliant	Gen10	EDGE up to 10Gbit/s (DL20), up to 20-100Gbit/s (DL380) CORE up to 10Gbit/s (DL20), up to 20-100Gbit/s (DL380) High throughput with specific NICs only
Dell	Dell PowerEdge R750	CORE up to 10Gbit/s
Cisco	Cisco UCS C240	CORE up to 10Gbit/s
<b>Virtualized environments</b>		
Google	GCP IaaS	EDGE or CORE. Performance depends on vCPUs and network interface.

#### 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.

Notes:

- all the selected components must be supported by the Ubuntu 22.04 Linux distribution.
- Anapaya optionally offer 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. Servers

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 <sup>1</sup>
SR-IOV:	yes			
Memory <sup>2</sup>	8GB	2x8GB	2x16GB	
Storage – appliance	64GB (RAID1 recommended for higher MTBF)			
Storage – local logs	200GB (RAID1 recommended for higher MTBF)			
NIC for SCION traffic	NIC supporting dpdk <a href="#">ixgbe</a> such as 82598, 82599, X520, X540, X550, or i40en such as X710, X770		Intel E810	
NIC for management	any			
Dedicate interface for management	optional	required		
Anapaya CORE	Not recommended	yes	yes	Qualification of the server is highly recommended
Anapaya GATE				
Anapaya EDGE				

#### 4.2. Baremetal-as-a-service:

The Anapaya software are expected to work with the following platforms:

- Equinix Metal

#### 4.3. Cloud environment

The Anapaya software are expected to work with the following platforms:

- Microsoft Azure

Note that the virtualized environment provider may mandate the qualification of Anapaya’s software image. Anapaya also highly recommend to request the qualification of the virtualized environment by our technical team, to ensure feasibility of the setup, and potentially assess the performance that could be expected.

<sup>1</sup> Both the previous and next hops must support SCION RSS.

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

## 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

The hardware devices offered by Anapaya comes with the software appliance pre-installed.

### 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:	<u>Front panel interfaces:</u> <ul style="list-style-type: none"> <li>• 2x flexible 1GbE WAN interfaces (RJ45 or SFP)</li> <li>• 4x 1GbE LAN interfaces (RJ45)</li> </ul>
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
Dimensions:	Width: 231mm, depth: 200mm, height: 44mm
Warranty:	1-year extended RMA (= early replacement)
Anapaya software:	Anapaya base image pre-installed
Available options:	<ul style="list-style-type: none"> <li>• Rackmount kit: hw-rackmount_s-type-01</li> <li>• Warranty extension to 36 months: hw-warranty_RMA_S_3y</li> <li>• Single-mode or multi-mode SFPs</li> </ul>

6.2. L-type appliance: for medium-sized POP or datacenter installations (10 – 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.



Front panel



Rear panel

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:	<b>Front panel interfaces:</b> <ul style="list-style-type: none"> <li>• 6x 25G (SFP28). Supports 25G and 25/10G SFPs</li> <li>• 2x 10G-BaseT (RJ45)</li> <li>• 4x 1GbE (RJ45) – reserved for management</li> </ul>
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
Available options:	<ul style="list-style-type: none"> <li>• Single-mode or multimode SFPs (SFP28)</li> </ul>

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.



Front panel



Rear panel

Item	Description
Anapaya SKU:	hw-appliance_XL
Model:	SuperMicro sys-110d-16c-fran8tp with additional NIC
SCION throughput	Up to 100Gbit/s (IMIX) - <b>/!\ tests in progress, results are not final.</b>
Network interfaces:	<u>Front panel interfaces:</u> <ul style="list-style-type: none"> <li>• 2x 100G (QSFP28).</li> <li>• 2x 25G (SFP28). Supports 25G and 25/10G SFPs</li> <li>• 2x 10G-BaseT (RJ45)</li> <li>• 4x 1GbE (RJ45) – reserved for management</li> </ul>
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
Available options:	<ul style="list-style-type: none"> <li>• Single-mode or multimode SFPs (SFP, SFP+, QSFP28)</li> </ul>

## 7. Revision history

Version	Date	Author	Description
1.2	2023-03-30	OML	Adding SuperMicro SYS-1019d + update of some requirements.
1.3	2023-08-08	OML	Update of the Extreme Networks software version
1.4	2023-09-21	OML	Reorganization of the structure + adding SYS-110D + sizing recommendation
1.5	2023-11-24	OML	Adding more details on the type of SFPs for L- and XL-type appliances
1.6	2024-01-17	OML	Correction of typos
1.7	2024-04-30	OML	Juniper appliance moved to “tested” + note on virtualized environments.