



# CRYSTAL EYE APPLIANCE SPEED GUIDE

**October 2023**

This document provides guidelines for choosing the Crystal Eye UTM appliance based on performance benchmarks, feature guides and how they relate to real-world deployments.



# CRYSTAL EYE APPLIANCE SPEED GUIDE

## Overview

Red Piranha's Crystal Eye UTM appliances offer some of the fastest throughput speeds available on the market today using the latest generation hardware coupled with leading edge security features in the Crystal Eye OS packaged in an easy to deploy form factor.

Unlike other UTM providers, Crystal Eye appliances deliver the same feature set across the entire range with the only differences in the hardware to cater for various applications.

This guide is designed to help you find the right Crystal Eye appliance for your use case.

## Choosing the right base model

Crystal Eye comes in 8 base models with the ability to include options ensuring a wide range of solutions are available to be tailored to specific requirements.

## Small to Medium business solutions

The Crystal Eye Series 10 to Series 30 appliances are well suited to the small or medium enterprise with simplified features allowing rapid deployment while still delivering the full Crystal Eye feature set as delivered in high performance models.

Series	CE 10	CE 20	CE 25	CE 30
Processor	Intel Generation 13 Core i3 13100, 4 Cores, 4.5GHz Z790 Chipset, Socket 1700	Intel Generation 13 Core i3 13100, 4 Cores, 4.5GHz Z790 Chipset, Socket 1700	Intel Generation 13 Core i5 13400, 10 Cores, 4.6GHz Z790 Chipset, Socket 1700	Intel Generation 13 Core i5 13400, 10 Cores, 4.6GHz Z790 Chipset, Socket 1700
RAM	16GB DDR5	32GB DDR5	32GB DDR5	32GB DDR5
WAN	1 x Intel Gb/s	2 x Intel Gb/s	2 x Intel Gb/s	2 x Intel Gb/s
LAN	1 x Intel Gb/s	4 x Intel Gb/s	4 x Intel Gb/s	4 x Intel Gb/s
Wireless	802.11, Bluetooth	802.11, Bluetooth	802.11, Bluetooth	-
System Storage	240GB M.2 NVMe PCIe	240GB M.2 NVMe PCIe	500GB M.2 NVME PCIe	500GB M.2 NVME PCIe
Storage Option	1 x 2.5 SSD up to 4TB	1 x 2.5 SSD up to 4TB	1 x 2.5 SSD up to 4TB	1 x 2.5 SSD up to 4TB
Form Factor Dimensions (mm)	W x Dx H 280mm(w)300mm(d) 80mm(h) Weight 5Kg	W x Dx H 280mm(w)300mm(d) 80mm(h) Weight 5Kg	W x Dx H 280mm(w)300mm(d) 80mm(h) Weight 5Kg	1U Rack W x D x H 248mm(w) 423mm(d) 88mm(h)



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## Large business solutions

The Crystal Eye Series 40 to Series 80 are designed with the large enterprise and telecommunications provider in mind capable of supporting demanding applications with flexible configurations packaged in low profile enclosures.

Series	CE 40	CE 50	CE 60	CE 80
Processor	DUAL SYSTEM Intel Generation 13 Core i5 13400, 10 Cores, 4.6GHz Z790 Chipset, Socket 1700	Intel Generation 13 Core i7 13700, 16 Cores, 5.2GHz Z790 Chipset, Socket 1700	Intel Generation 13 Core i9 13900, 24 Cores, 5.6GHz Z790 Chipset, Socket 1700	Dual Xeon
RAM	64GB DDR5 (32GB per system)	32GB DDR5	32GB DDR5	128GB DDR5
WAN	4 x Intel Gb WAN port (2 per CPU)	1 x Intel Gb WAN port, 1 x 10Gb WAN port	1 x Intel Gb WAN port, 1 x 10Gb WAN port	See SFP ports
LAN	8 x Intel Gb LAN port (4 per CPU)	4 x Intel Gb LAN port, 4 Intel 10GB LAN	4 x Intel Gb LAN port, 4 Intel 10GB LAN	4 x Intel X710-T4 10Gb LAN
Management Port	-	-	-	2
SFP Ports	-	2 x DUAL SFP 10Gb	2 x DUAL SFP 10Gb	2 x Intel XL710-QDA2 Dual Port 40Gb WAN Dual port Total 80gb 2 x Intel XL710-QDA2 Dual Port 40Gb LAN Dual port Total 80gb
System Storage	System Drive 2 x 500G M.2 NVME PCIe Gen 4 SSD included (1 per CPU)	System Drive 1 x 500GB M.2 NVME PCIe Gen 4 SSD included	System Drive 1 x 500GB M.2 NVME PCIe Gen 4 SSD included	System Drive 1 x 500GB M.2 NVME PCIe Gen 4 SSD included
Storage Option	4 x 2.5in SSD to 4TB per drive (2 per CPU)	Up to 4 x 2.5 inch SATA 3 SSD up to 4TB/drive plus 1 additional M.2 512GB NVMe	Up to 4 x 2.5 inch SATA 3 SSD up to 4TB/drive plus 1 additional M.2 512GB NVMe	Up to 6 x 2.5 inch SSD up to 4TB/drive
Form Factor	2U Rack	2U Rack	2U Rack	2U Rack

## Specialist custom solutions

Red Piranha will also build custom solutions to order from the cluster ready Crystal Eye 100 single unit equipped with Napatech 100Gb/s networking and hardware level programmable firewall suitable for extremely high speed throughput applications and the Crystal Eye 200, a custom solution packaged in a dedicated rack configured to cater to high performance or unique applications.



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## Crystal Eye speed and throughput metrics<sup>1</sup>

Series	Firewall <sup>2</sup>	IDS/IPS <sup>3</sup>	True Security Throughput <sup>4</sup> (TST)
10	1Gb/s	400Mb/s	100Mb/s (under moderate load)
20	2Gb/s	800Mb/s	275Mb/s (under higher load)
25	4Gb/s	1.4Gb/s	880Mb/s (under moderate load)
30	4Gb/s	1.4Gb/s	880Mb/s (under moderate load)
50	34Gb/s	2.5Gb/s	1.4Gb/s (under heavy user load)
60	34Gb/s	4.8Gb/s	2.5Gb/s (under heavy user load)
80	74Gb/s	17Gb/s	12Gb/s (High speed Telco grade with major infrastructure)

<sup>1</sup> As at time of publication (October 2023)

<sup>2</sup> **Firewall Speed**, 'Wire speed' or 'wire rate' is the maximum capacity between two ports of the same bandwidth/speed possible with no packet loss. Lower end routers might claim high speed ports but a bottleneck like a slow CPU will result in a lower than advertised Firewall Speed. Crystal Eye appliances use the highest performance hardware available and can deliver on quoted speeds as recorded in lab tests.

<sup>3</sup> **IDS IPS Bandwidth** is the maximum volume of data that can be processed by the Intrusion Detection (IDS) and Intrusion Protection (IPS) modules without dropping packets.

<sup>4</sup> **True Security Throughput (TST)** is the lab tested peak loads based on a typical enterprise network profile containing a mix of traffic types consisting of 76% http(s) web browsing, 12% realtime applications (VoIP, Video conferencing) and the remaining 12% representing other traffic types with all security functions in operation. Raw throughput is not an accurate representation of performance in your typical deployment.



## Client Recommendation Guide

The following table gives an approximation of the number of devices that would be typical deployments for each Crystal Eye device based on average network utilization.

Series	Typical application <sup>5</sup>
10	Small office or home office of up to 10 users using business grade NBN.
20	Small office or branch office of up to 20 using business grade NBN.
25	Medium sized enterprise with moderate network traffic capable of 500Mb/s or 1Gb/s business link.
40	Larger sized enterprise with high traffic volume capable of serving 1Gb/s in mission critical applications.
50/60	High performance enterprise and telecommunications class environments.
80	A high-performance solution designed for large IT or telecommunications operations supporting heavy user loads.

## Conclusion

Each network or scenario is different in utilisation, structure and future demands. This guide is to highlight common configurations to help you make an informed decision on the Crystal Eye Appliance that best suits your current and future requirements.

It is important to stress that planning for future growth will ensure that the Crystal Eye device you choose will be well utilized and continue to deliver consistent ROI while serving your end users for many years to come.

<sup>5</sup> **Typical Application** does not take into consideration unique conditions or requirements and is more a guide than a recommendation.