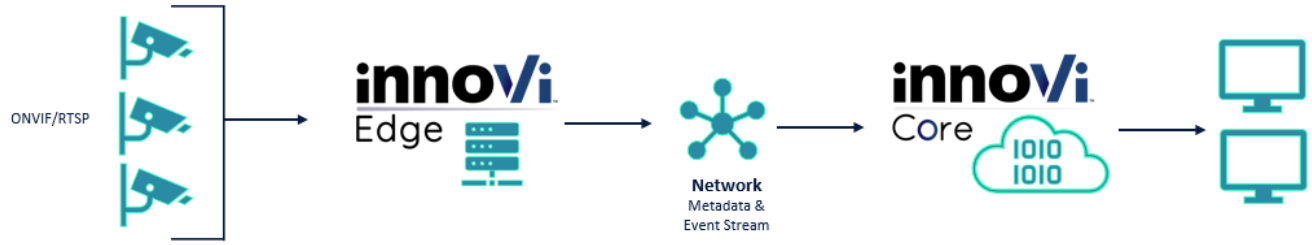
innoVi Edge CI (Customer Installed) Data Sheet

innoVi Edge CI enables the deployment of Agent Vi's software on a customer's chosen hardware to connect ONVIF / RTSP fixed IP cameras from the camera's network to a centralized innoVi Core. The chosen hardware must be aligned with the specifications listed in this data sheet. Agent Vi innoVi system can have one or multiple innoVi Edge Devices (innoVi Edge CI, innoVi Edge 320/325, or a mix of both), that process the video stream, transforming it into Agent Vi's proprietary metadata before sending it to an innoVi Core, which will then perform all central management and advanced analysis. See ***Note 1*** for innoVi Virtual Edge.



Choose the Processor

An innoVi Edge CI server can be built with one or two processors. The number of cameras supported by a given Edge Device depends on the following factors: streaming profile, scene activity, and hardware specifications.

The table below summarizes expected camera capacity **per processor**, for servers with single or double **Intel® Xeon® Gold 6226R** processors (each processor having **16 physical cores**). See ***Note 2***.

Stream profile	Per Processor		
	Low Activity	Medium Activity	High Activity
H.264 @ 720P @ 8 FPS	65	43	35
H.264 @ 1080P @ 15 FPS	33	28	24
H.264 @ 1080P @ 30 FPS	26	24	21
H.265 @ 720P @ 8 FPS	53	40	34
H.265 @ 1080P @ 15 FPS	26	24	21
H.265 @ 1080P @ 30 FPS	23	20	18

The table below summarizes estimated camera capacity **per physical core**, for servers with the following single or double Intel® processors:

- 2nd Generation Intel® Xeon® Scalable Processors (Cascade Lake)
- 3rd Generation Intel® Xeon® Scalable processor (Ice Lake)

See ***Note 2b***.

Stream profile	Per Core		
	Low Activity	Medium Activity	High Activity
H.264 @ 720P @ 8 FPS	3.0	2.0	1.6
H.264 @ 1080P @ 15 FPS	1.5	1.3	1.1
H.264 @ 1080P @ 30 FPS	1.2	1.1	1.0
H.265 @ 720P @ 8 FPS	2.5	1.9	1.6
H.265 @ 1080P @ 15 FPS	1.2	1.1	1.0
H.265 @ 1080P @ 30 FPS	1.1	0.9	0.8

Choose the Memory

Memory per each processor, for optimal performance, See ***Note 3***:

- For Intel® Xeon® Cascade Lake processors: 6 x 16GB RDIMM, DDR4-2933MT/s, Dual Rank
- For Intel® Xeon® Ice Lake processors: 8 x 16GB RDIMM, DDR4-3200MT/s, Dual Rank
- For other processor generations, follow Intel® guidance to achieve high computational performance

Choose the Storage

Disk space for Operating System & application: 128GB

Storage requirements (space and performance):

For innoVi Enterprise or innoVi Investigation

The following two options are available (per camera) for viewing investigation results:

1. "Full frame recording" in camera settings is turned ON: an internal storage is used for video recording. High quality investigation results are displayed in the innoVi portal
2. "Full frame recording" in camera settings is turned OFF: image crops of the detected object are displayed in the investigation results, at low quality

In case of using a VMS that is integrated with innoVi for Investigation, the investigation results are pulled from the VMS. "Full frame recording" in camera settings should be turned OFF. Refer to supported VMS here: https://www.agentvi.com/supported_vms/

Requirement	**Full Frame Recording turned ON**	**Full Frame Recording turned OFF**
Storage per camera (GB/Day)	16	7
Write IOPS per camera (count)	20	12
Write Throughput per camera (MB/s)	0.6	0.35

Example (Full Frame Recording is turned ON, for 10 cameras):

- Storage: 1 week of storage requires 10 cameras * 7 days * 16 GB/Day = 1,120 GB
- Write performance:
  - Write IOPS: 10 cameras * 20 IOPS = 200 IOPS
  - Write Throughput: 10 cameras * 0.6 MB/s = 6 MB/s

For innoVi Remote Guarding

Storage of 2 GB/Day per camera is required

Other Considerations

- Operating system: Ubuntu **18.04**, LTS 64-bit, server edition with no GUI installed
- innoVi Edge CI can be deployed on VM. The supported camera count may be reduced
- The innoVi Edge CI server should not host other non-innoVi applications
- The specification and number of supported cameras is based on a specific processor model. Any alternative models need to be approved by Agent Vi. See ***Note 4***
- Cameras connected to innoVi Edge CI must have static IP addresses (dynamic IP allocation may result in camera disconnections)

Bandwidth Requirements from innoVi Edge to innoVi Core

Average Required bandwidth per camera:

- 5 kbps upload
- 0.5 kbps download

Additional upload bandwidth:

- Real-Time Event Detections: ~500 KB per event
- Live View in innoVi GUI: ~300 Kbps per camera

Maximum allowed latency from the innoVi Edge to the cloud:

- 2 seconds

Supported Camera Characteristics

- Resolution: up to 4K
- Frame Rate: 8 FPS is the minimal supported frame rate
- Video stream width should be divisible by 4
- Maximum allowed aspect ratio is 4:1

Note 1: The innoVi Virtual Edge is installed on the same hardware as of the innoVi Edge CI, however, it is applicable only for Customer Hosted deployments. The server/s of the innoVi Virtual Edge are installed together with the innoVi Core under the same Kubernetes cluster.

Note 2: The table is based on the most common feature mixes tested using typical customer usage scenarios and may vary from customer to customer.

Note 2b: These numbers are estimates and have been derated to account for slight differences between processors. Furthermore, performance is not completely linear at higher core counts. Note 2 is applicable here as well.

Note 3: Additional information related to the effects of memory bank configuration for Intel® Xeon® processors can be found here:
https://downloads.dell.com/manuals/common/balancing_memory_xeon_2nd_gen.pdf

Note 4: The innoVi Edge software is based on Intel® OpenVINO™ platform, optimized to use acceleration features that are specific to certain processor models. Running the software on processors without the correct acceleration features can significantly reduce the number of supported cameras.

Note 5: The hardware requirements are provided for budgetary and planning purposes. They are based on typical customer usages scenarios, as tested by Agent Vi, with hardware available at the time of testing. Given that hardware and software change frequently, Agent Vi recommends that customers request a formal review and hardware specification for their project before purchasing any hardware. Agent Vi reserves the right to change the product specification at its sole discretion at any time.

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