NiceVision
System Requirements Guide

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Revision History

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1 Introduction

This guide describes the NiceVision workstation and servers' minimum requirements.

The workstation, storage and/or server recommendations are an estimate based on extensive performance testing conducted by Qognify. It is recommended to add hardware/storage overhead to accommodate future changes. Qognify has made every effort to assure the accuracy of the information provided, however it will assume no liability for damages or losses resulting from the use of the information.

1.1 CPU Benchmark

In this version, Qognify introduces a new CPU recommendation based on CPU Clockspeed and CPU benchmark. The CPU benchmark is based on Passmark Software.

The CPU Clockspeed calculation uses the following formulas:

CPU with Hyper-Threading	#Socets x (#Cores x 1 + #HT x 0.3) x GHz per Core
CPU Without Hyper-Threading	#Socets x (#Cores x 1 x GHz per Core)

2 Software Requirements

This chapter lists the minimum software requirement for each SW component, including Operating System and MS SQL, as well as .NET, which is not part of the NiceVision installer.

Table 2-1: Operating System Support

NiceVision Component	Operating System
NiceVision Application Suite	For new systems in a standard or large site: ▪ Windows 10 64Bit ▪ Windows 7 Professional 64Bit ▪ Windows 7 Ultimate 64Bit
NiceVision AMS	Large site: 501 - 8500 cameras or 15 - 600 recorders Standard site: up to 500 cameras or up to 15 recorders Both site types support any of the OS, listed below: ▪ Windows server 2019 English (Standard Edition) ▪ Windows Server 2016 English (Standard Edition) ▪ Windows Server 2012 R2 English (Standard Edition 64Bit) with SQL Server 2014 ▪ Windows 7 SP1 Professional 64Bit ▪ Windows 7 SP1 Ultimate 64Bit **MS SQL** ▪ SQL server 2017 standard edition (supplied by Qognify) ▪ SQL Server 2014 standard edition SP3 **Additional software** ▪ .NET 3.5 ▪ Microsoft® ODBC Driver 17 for SQL Server® (supplied by Qognify) ▪ Microsoft® SQL Server® 2012 Native Client – QFE (supplied by Qognify) ▪ Visual C++ Redistributable for Visual Studio 2015 (supplied by Qognify) NOTE: The AMS runs only under Microsoft Windows English language version.
SVR/CSS Software Kit	Low and Basic Performance server requirements: ▪ Windows Server 2019 English (Standard Edition) ▪ Windows Server 2016 English (Standard Edition) ▪ Windows Server 2012 R2 Standard Edition 64Bit ▪ Windows 7 Ultimate Edition SP1 64Bit Mid, High and Extreme Performance server requirements: ▪ Windows Server 2019 English (Standard Edition) ▪ Windows Server 2016 English (Standard Edition) ▪ Windows Server 2012 R2 Standard Edition 64Bit
NVD Software Kit	▪ Windows Server 2012 R2 Standard Edition 64Bit ▪ Windows Server 2016 English (Standard Edition) ▪ Windows Server 2019 English (Standard Edition) ▪ Windows 10 ▪ Windows 7 Ultimate 64Bit SP1

NiceVision Component	Operating System
	▪ Windows 7 Professional 64Bit SP1
Web streamer	▪ Windows Server 2012 R2 Standard Edition 64Bit
Transcoder server	▪ Windows Server 2016 English (Standard Edition) ▪ Windows Server 2012 R2 Standard Edition 64Bit
MPC server	▪ Windows Server 2016 English (Standard Edition) ▪ Windows Server 2012 R2 Standard Edition 64Bit
Suspect Search Web server	▪ Windows Server 2019 English (Standard Edition) ▪ Windows Server 2016 English (Standard Edition) ▪ Windows Server 2012 R2 Standard Edition 64Bit
Suspect Search database	▪ Windows Server 2019 English (Standard Edition) ▪ Windows Server 2016 English (Standard Edition) ▪ Windows Server 2012 R2 Standard Edition 64Bit **MS SQL** ▪ SQL server 2017 standard edition (supplied by Qognify) ▪ SQL Server 2014 standard edition SP3

3 Workstation Minimum Requirements

These are minimum requirements for a workstation, including new systems and upgrades.

3.1 New Systems

Table 3-1: Workstation Requirements - New System

Part	Description
CPU Clockspeed	≥ 16.8 GHz
CPU Passmark Points	≥ 11,994
CPU examples	Intel Core i7-7700K @ 4.20GHz Intel Core i5-8600 @ 3.10GHz Intel Core i7-8700 @ 3.20GHz
Memory	At least 8GB. 16GB is recommended
VGA cards	NVIDIA Quadro NVS310 / NVS510 / P1000 NVIDIA GTX 1060 6GB
VGA monitor	Supporting 1024x768 and 32-bit color resolution, or higher
HDD	250GB Hard Drive, SSD 2.5"
LAN interface	1 x Gigabit Ethernet
DVD burning	DVD\RW drive
Audio	Integrated

3.2 Upgraded Systems

Table 3-2: Workstation Requirements - Upgraded System

Part	Description
CPU Clockspeed	>= 10.2 GHz
CPU Passmark Points	>= 5,632
CPU examples	Intel Core i3-7300 @ 4.00GHz Intel® Xeon® Bronze 3104 Processor
Memory	At least 4GB
VGA cards	Intel HD Graphics 2000 or higher NVIDIA Quadro NVS310 / NVS510 / P1000
VGA monitor	Supporting 1024x768 and 32Bit color resolution, or higher
HDD	250GB (7,200rpm) or more SATA II Hard Drive
LAN interface	1 x Gigabit Ethernet
DVD burning	DVD\RW Drive
Audio	Integrated

4 AMS Minimum Requirements

The following are minimum requirements for the AMS (Application Management System) large and standard sites.

4.1 Large Site

A large site includes:

- From 501 to 8500 cameras

  -or-

  From 15 to 600 Recorders

Table 4-1: Large Site Requirements

Component	Requirements
CPU Clockspeed	≥24.24 GHz
CPU Passmark Points	≥ 23,314
CPU Examples	1 x Skylake 4110
Vision Database	SQL 2017 standard edition (supplied by Qognify) SQL 2014 Standard Edition SP3
RAM	At least 16GB
LAN Interface	1 x Gigabit Ethernet
HHD	1.2TB SAS 10K / 1TB SSD 2.5 mixed
Storage Redundancy	Recommended: Storage redundancy and protection via RAID 1
Network connectivity	▪ Recommended for system redundancy: two NIC cards in a redundant configuration ▪ A secured internet connection (PPP, VPN) is needed for support/maintenance purposes
DVD/USB	Recommended for software installations
Fans	Recommended: hot swappable redundant fans
Power Supply	Recommended: hot swappable redundant power supply
UPS	It is highly recommended to utilize UPS for protecting the mission critical application server. Please consult with your system integrator or installer regarding the specific UPS model which will support the installed equipment

4.2 Standard Site

A standard site includes:

- Up to 500 cameras
- Up to 15 recorders

NOTE: For up to 200 channels you can install AMS on one of the SVR servers.

Table 4-2: Standard Site Requirements

Component	Requirements
CPU Clockspeed	≥ 18.24 GHz
CPU Passmark Points	≥11,657
CPU Examples	1 x E-2144 Intel® Xeon® E Processor
Vision Database	SQL 2017 standard edition (supplied by Qognify) SQL 2014 Standard Edition SP3
RAM	At least 8GB
LAN Interface	1 x Gigabit Ethernet
HHD	SSD mixed 500 / 500GB SATA II Hard Drive or more
Storage Redundancy	Recommended: Storage redundancy and protection via RAID
Network connectivity	▪ Recommended for system redundancy: two NIC cards in a redundant configuration ▪ A secured internet connection (PPP, VPN) is needed for support/maintenance purposes
DVD/USB	Recommended for software installations
Fans	Recommended: hot swappable redundant fans
Power Supply	Recommended: hot swappable redundant power supply
UPS	It is highly recommended to utilize UPS for protecting the mission critical application server. Please consult with your system integrator or installer regarding the specific UPS model which will support the installed equipment

5 SVR/CSS Minimum Requirements

The following are the SVR (Smart Video Recorder) minimum requirements. A few options are available for covering different performance points (see section 5.1 Performance Results for Software-Kits).

Consult your Qognify presales engineer regarding the best hardware solution for your needs (Low, Basic, Medium, High or Extreme performance). The performance model is calculated based on the number of channels (encoders or cameras), bit rate, and Video Analytics.

NOTE: The eXpress package is installed on Basic or Medium performance hardware.

Table 5-1: Low Performance Server Requirements

Component	Value
CPU Clockspeed	≥ 9.6 GHz
CPU Passmark Points	≥ 8,006
CPU Example	i3 8100 8th Gen
RAM	At least 8GB
HDD	SATA II Hard Drive or more Free space according to Operating System minimum requirements, plus 4GB for every 1TB of video storage for video database
LAN Interface	1 x Gigabyte Ethernet adapter
Network Connectivity	Recommended for system redundancy: two NIC cards in a redundant configuration A secured Internet connection (PPP, VPN) is needed for support/maintenance purposes
DVD/USB	Recommended for software installations
Storage Redundancy	Recommended: Hot swappable RAID 1 for the OS Recommended spec for video is unRAID hard drives or higher
Fans	Recommended: hot swappable redundant fans
Power Supply	Recommended: hot swappable redundant power supply
UPS	It is highly recommended to utilize UPS for protecting the mission critical application server. Please consult with your system integrator or installer regarding the specific UPS model which will support the installed equipment.

Table 5-2: Basic Performance Server Requirements

Component	Value
CPU Clockspeed	≥ 13.32 GHz
CPU Passmark Points	≥11,657
CPU	E-2144 Intel® Xeon® E Processor
RAM	At least 8GB

Component	Value
HDD	SATA II Hard Drive or more. Free space according to Operating System minimum requirements, plus 4GB for every 1TB of video storage for video database
LAN Interface	1 x Gigabyte Ethernet adapter
Network Connectivity	Recommended for system redundancy: two NIC cards in a redundant configuration A secured Internet connection (PPP, VPN) is needed for support/maintenance purposes
DVD/USB	Recommended for software installations
Video Storage	Recommended spec for video storage is unRAID hard drives or higher (refer to Video Storage System (see page 10)
Storage Redundancy	Recommended: hot swappable RAID 1 for the OS
Fans	Recommended: hot swappable redundant fans
Power Supply	Recommended: hot swappable redundant power supply
UPS	It is highly recommended to utilize UPS for protecting the mission critical application server. Please consult with your system integrator or installer regarding the specific UPS model which will support the installed equipment.

Table 5-3: Medium Performance Server Requirements

Component	Value
CPU Clockspeed	≥ 13.32 GHz
CPU Passmark Points	≥ 11,657
CPU	E-2144 Intel® Xeon® E Processor
RAM	At least 8GB
HDD	SATA II Hard Drive or more Free space according to Operating System minimum requirements plus 4GB for every 1TB of video storage for video database
LAN Interface	1 x Gigabit Ethernet adapter
Network Connectivity	Recommended for system redundancy: two NIC cards in a redundant configuration A secure internet connection (PPP, VPN) is needed for support/maintenance purposes
DVD/USB	Recommended for software installations
Video Storage	Recommended spec for video storage is RAIDed hard drives or higher (refer to Video Storage System (see page 10)
Storage Redundancy	Recommended: hot swappable RAID 1 for the OS
Fans	Recommended: hot swappable redundant fans
Power Supply	Recommended: hot swappable redundant power supply
UPS	It is highly recommended to utilize UPS for protecting the mission critical application server. Please consult with your system integrator or installer regarding the specific UPS model which will support the installed equipment.

Table 5-4: High Performance Server Requirements

Component	Value
CPU Clockspeed	≥ 24.24 GHz
CPU Passmark Points	≥ 11,324
CPU	Intel Xeon® E5-2620 v4 @ 2.10GHz
RAM	At least 16GB
OS HDD	SAS 10K 1.2TB for OS (RAID1 recommended) Free space according to Operating System minimum requirements, plus 4GB for every 1TB of video storage for video database.
LAN Interface	Gigabit Ethernet
Network Connectivity	Recommended for system redundancy: two NIC cards in a redundant configuration A secured internet connection (PPP, VPN) is needed for support/maintenance purposes
DVD/USB	Recommended for software installations
Video Storage	NLSAS for video storage Recommended spec for video storage is RAIDed hard drives or higher (refer to Video Storage System (see page 10))
Storage Redundancy	Recommended: hot swappable RAID 1 for the OS
Fans	Recommended: hot swappable redundant fans
Power Supply	Recommended: hot swappable redundant power supply
UPS	It is highly recommended to utilize UPS for protecting the mission critical application server. Please consult with your system integrator or installer regarding the specific UPS model which will support the installed equipment.

Table 5-5: High VA Performance Server Requirements

Component	Value
CPU Clockspeed	≥ 61.2 GHz
CPU Passmark Points	≥ 28,594
CPU Example	2 x Intel Xeon® Silver 4110 @ 2.10GHz
RAM	At least 16GB
OS HDD	SAS 10K 1.2TB for OS (RAID1 recommended) Free space according to Operating System minimum requirements, plus 4GB for every 1TB of video storage for video database
LAN Interface	Gigabit Ethernet
Network Connectivity	A secured internet connection (PPP, VPN) is needed for support/maintenance purposes. Recommended for system redundancy: two NIC cards in a redundant configuration
DVD/USB	Recommended for software installations
Video Storage	NLSAS for video storage

Component	Value
	Recommended spec for video storage is RAIDed hard drives or higher (refer to Video Storage System (see page 10)
Storage Redundancy	Recommended: hot swappable RAID 1 for the OS
Fans	Recommended: hot swappable redundant fans
Power Supply	Recommended: hot swappable redundant power supply
UPS	It is highly recommended to utilize UPS for protecting the mission critical application server. Please consult with your system integrator or installer regarding the specific UPS model which will support the installed equipment.

Table 5-6: Extreme Performance Server Requirements

Component	Value
CPU Clockspeed	≥ 48.48 GHz
CPU Passmark Points	≥ 23,314
CPU Example	2 x Intel Xeon® Silver 4110 @ 2.10GHz
RAM	At least 32GB
OS HDD	SAS 10K 1.2TB for OS (RAID1 recommended) Free space according to Operating System minimum requirements, plus 4GB for every 1TB of video storage for video database
LAN Interface	2 x Gigabit Ethernet
Network Connectivity	A secured internet connection (PPP, VPN) is needed for support/maintenance purposes Recommended for system redundancy: two NIC cards in a redundant configuration
DVD/USB	Recommended for software installations
Video Storage	Recommended spec for video storage is RAIDed hard drives or higher (refer to Video Storage System (see page 10))
Storage Redundancy	Recommended: hot swappable RAID 1 for the OS
Fans	Recommended: hot swappable redundant fans
Power Supply	Recommended: hot swappable redundant power supply
UPS	It is highly recommended to utilize UPS for protecting the mission critical application server. Please consult with your system integrator or installer regarding the specific UPS model which will support the installed equipment.

Table 5-7: Video Storage System

Component	Value
Controller Processor	LSI ROC XOR engine
Controller Cache	512MB and up
Interface	PCI-Express
RAID Type	RAID5

Component	Value
Disks per RAID Group	12 (11 + 1 for parity) or more
Disk Type	1TB (or more) 7200RPM (or higher) NL-SAS
Controller Cache Policy	Write back
RAID Stripe Size	128KB

5.1 Performance Results for Software-Kits

Table 5-8: Performance Results – Software Kits

Software - kit Platform	Recording [MB/Sec]	Storage Throughput [MB/Sec]	Computational Power [MB/Sec]	Total CH	VA CIF@ HRT	VA higher than CIF@ HRT	SUSE 4CIF	SUSE HD	Example
Low	4	4.88	6.08	64	1	–	–	–	16 x 2Mbps
Basic	13.5	16.59	20.67	128	5	–	–	–	54 x 2MBps
Medium	21	25	32	100	–	–	–	–	84 x 2Mbps
				50	8	8	–	–	42 x 2Mbps
				32	–	–	3	3	32 x 2.5Mbps
High	40.8	49.776	62	128	10	6	–	–	128 x 2.5Mbps
				32	–	–	6	6	32 x 3Mbps
High VA	40.8	49.776	62	128	34	17	34	–	128 x 2.5Mbps
				32	–	–	–	27	32 x 3Mbps
Extreme	54.4	66.368	82.688	128	–	–	–	–	108 x 4Mbps

NOTE: Both SAN and DAS are supported.

6 SVR Virtualization Guide

Qognify offers the VMware solution, which enables running the SVR software on a virtual environment, as well as processing and managing video and audio streams the same way as a physical recorder.

The main advantage of virtualization is reduced usage of the computer processing power, which saves physical computer components cost.

This section describes general guidelines for configuring SVR on the VMware software.

6.1 Version Identifiers

- VMware versions from v5.5 UP2 till v6.0
- SVR versions NiceVision 3.2 and up

6.2 VMware Host Minimum Requirements

Ensure that the server meets the following minimum requirements.

Table 6-1: Server Minimum Requirements

Component	Value
CPU	2 x Intel Xeon® E5-2620 @2.399 GHz CPU or higher Hyper-threading support
Memory	32 GB RAM
NIC	Total of 4 NICs: 4x1GB NIC for virtual machines (depends on the calculation model)
Storage	Server internal hard drives / RAID configuration: ▪ 1 virtual disk, Partition C, 60 GB for OS, Windows 2012 R2 Standard SP1 ▪ 1 virtual disk, Partition D for Recorder database - 1 TB each

6.3 VMware Environment Pre-Requisites

The installation and configuration of the virtual environment is not provided by Qognify and should be carried out only by a qualified IT person. Refer to the VMware best practices in http://www.vmware.com/pdf/Perf_Best_Practices_vSphere5.1.pdf.

Only VMware certified professional is authorized to install and setup the environment.

6.4 VMware Environment Minimum Requirements

- VMware version ESXi 5.5 UP2 or ESXi 6.0 including the latest updates for the host server
- VMware client with the latest updates

- The operating system and the Recorder software should be installed on local hard disks
- The video database should be installed on DAS storage, with appropriate I/O performance for the total SVR bit-rate performance
- The host that contains more than one VM Client, and more than 32 MB per one VM Client - requires at least 15K SAS HDD for Recorder database.

6.5 Virtualized SVR Minimum Requirements

Ensure that the SVR meets the following minimum requirements:

Table 6-2: Server Minimum Requirements

Component	Value	Comments
CPU	1 virtual socket 4 virtual cores	Total of 4 cores
Memory	4096MB	
Video Card	1 virtual monitor, 8MB of video memory	Up to 1280 x 1024 resolution
SCSI Controller 0	LSI Logic SAS	
Hard Drive 1	▪ Thick Provisioning Eager Zeroed type ▪ Provisioned size = 60GB for Windows 2012 R2	
SCSI Controller 1	LSI Logic SAS	
Hard Drive 2	▪ Thick Provisioning Eager Zeroed type ▪ Provisioned size = 4GB for every 1TB of video storage	Partition for the recorder database for VM client recording 32 MB or above requires 15K rpm SAS HDD
CD/DVD		For software installation
One Dedicated Network Adapter	VMXNET 3 type	Dedicated physical NIC for each VM client recording up to 32 MB
Two Dedicated Network Adapters	VMXNET 3 type	2 Dedicated physical NICs for each VM client recording 48 MB or more

6.6 ESXi Host Modeling

This section describes how to ensure that the CPU performance is adequate.

- Each 1 MB/sec recording is equivalent to 260 CPU MHz
- Each VM client requires 1300 CPU MHz
- Each VM client requires 0.5 Giga Byte physical memory per 1MB MB/sec recording
- Client SVR recording throughput < 32 MB/sec requires 1x4 vCPU
- Client SVR recording throughput ≥32 MB/sec requires 1x12 vCPU
- Client SVR recording throughput = 64 MB/sec requires 2x12 vCPU

- Throughput > 32 MB/Sec requires 15K HDD for the recorder database
- Add 30% overhead for the final calculation results

Formula to calculate virtual CPU

$$\text{Required CPU} = Processors * \ \ of\ Cores * Processor\ Base\ Frequency * Convert\ GHz\ to\ MHz$$

$$\text{Performance Requirement} = Recording\ Throughput + \#of\ VM\ clients$$

Example of SVR9820 calculation:

- CPU results based on 2 x E5-2620V3 CPU
- Number of processors: 2
- Cores per processors: 6
- Processor Base Frequency: 2.399 GHz

Calculation: 2*6*2.399*1000 = 28788 MHz

Performance Requirements:

- Total throughput - 48 MB
- Number of VM clients - 6
- Overhead: 30% (=1.3)

Calculation: 1.3 * (48 MB * 260 CPU MHz + 1300 CPU MHz * 6) = 26364

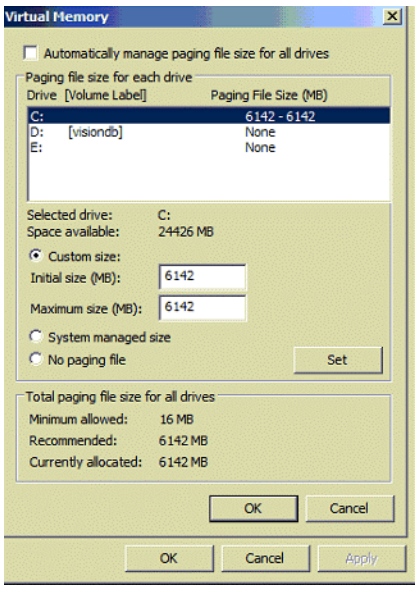
Results:

28788 MHz > 26364 MHz - In this case the performance of the HOST server is valid to run VM SVR clients.

6.7 Configuring Virtual Memory

Set the virtual memory to a **Custom size**, with both the **Initial size (MB)** and Maximum size (MB) as 6142.

Figure 6-1: VM Virtual Memory



6.8 Sizing Guidelines

Certification was done during 30% Live + 20% MOL (playback) + constant playback locking files. The configuration includes VPO and Camera Tampering on all channels.

- Max recording throughput for a HOST - 64 MB
- Max VM clients per host - 8
- Supported storage - DAS
- Minimum vCPU per client - 4
- Max supported channels per host - 1024
- CPU process must support Hyper-Threading
- host will serve the SVR only
- CPU or Memory shared allocation is not certified
- Each host needs to have 8 GB of spare memory for usage peaks

6.9 Virtual SVR Performance

Table 6-3: VM Client Performance

Number of VMs	Recording throughput MB/s per VM	CT and VPO channels per VM Client	Total of channels
1	64	128	128
2	32	128	256
4	16	128	512
6	10	128	768
8*	8	128	1024

*Eight VM clients that are approved per Host are not based on the minimum recommended spec and require a higher spec.

6.10 SVR Virtualization Limitations

Certification was done during 30% Live + 20% MOL + constant playback locking files.

The following VMware features are not approved:

- High Availability
- Fault Tolerance
- vMotion
- Snapshots
- Distributed Resource Scheduler

The following Qognify features are by default not supported in a virtual environment. They can be supported on a project-basis.

- Multi-retention
- CSS

- Edge recording
- VA or Suspect Search channels

7 NVD Requirements

The following are NVD (Network Video Decoder) minimum requirements:

Table 7-1: NVD minimum Requirements

Part	Description
CPU Clockspeed	≥16.8 GHz
CPU Passmark Points	≥ 11,381
CPU Examples	E-2144 Intel® Xeon® E Processor Intel Core i7-8700 @ 3.20GHz Intel Core i5-8600 @ 3.10GHz
Memory	At least 4GB
VGA cards	1 x NVIDIA Quadro NVS310 (Windows 7) 1 x NVIDIA Quadro NVS510 1 x NVIDIA Quadro P1000 1 x NVIDIA P600
HDD	250GB (7,200rpm) SATA II Hard Drive or more
LAN interface	1 x Gigabit Ethernet
Storage Redundancy	Recommended: Storage redundancy and protection via RAID
Network connectivity	▪ Recommended for system redundancy: two NIC cards in a redundant configuration ▪ A secured internet connection (PPP, VPN) is needed for support/maintenance purposes
DVD/USB	Recommended for software installations
Fans	Recommended: hot swappable redundant fans
UPS	It is highly recommended to utilize UPS for protecting the mission critical application server. Please consult with your system integrator or installer regarding the specific UPS model which will support the installed equipment.
Power Supply	Recommended: hot swappable redundant power supply

8 Web Streamer or All-in-One Server Minimum Requirements

These are minimum requirements for the WSA (Web and Smart Phone Application) server.

Table 8-1: Web Streamer or All-in-one Requirements

Part	Description
CPU Clockspeed	≥ 24.24 GHz
CPU Passmark Points	≥ 11,657
CPU Examples	2 x Skylake 4110
Memory	At least 16GB
LAN interface	1 x Gigabit Ethernet
HDD	1.2TB SAS 10K / 1TB SSD 2.5 mixed
Storage redundancy	Recommended: Storage redundancy and protection via RAID
Network connectivity	▪ Recommended for system redundancy: two NIC cards in a redundant configuration ▪ A secured internet connection (PPP, VPN) is needed for support/maintenance purposes
DVD/USB	Recommended for software installations
Fans	Recommended: hot swappable redundant fans
Power Supply	Recommended: hot swappable redundant power supply
UPS	It is highly recommended to utilize UPS for protecting the mission critical application server. Please consult with your system integrator or installer regarding the specific UPS model which will support the installed equipment.

Table 8-2: Transcoder Requirements

Part	Description
CPU Clockspeed	≥ 48.48 GHz
CPU Passmark Points	≥ 23,314
CPU Examples	2 x Skylake 4110
Memory	At least 16GB
LAN interface	1 x Gigabit Ethernet
HDD	1.2TB SAS 10K / 1TB SSD 2.5 mixed
Storage redundancy	Recommended: storage redundancy and protection via RAID
Network connectivity	▪ Recommended for system redundancy: two NIC cards in a redundant configuration ▪ A secured internet connection (PPP, VPN) is needed for support/maintenance purposes
DVD/USB	Recommended for software installations
Fans	Recommended: hot swappable redundant fans

Part	Description
UPS	It is highly recommended to utilize UPS for protecting the mission critical application server. Please consult with your system integrator or installer regarding the specific UPS model which will support the installed equipment.
Power Supply	Recommended: hot swappable redundant power supply

9 Suspect Search MPC Server Specifications

The following are the minimum hardware requirements for the Suspect Search MPC (Metadata Processing Center) server.

Table 9-1: MPC Requirements

Part	Description
CPU Clockspeed	≥ 61.2 GHz
CPU Passmark Points	≥ 28,594
CPU Examples	2 x Intel® Xeon® Silver 4114 @ 2.20GHz
Memory	At least 16GB
LAN interface	2 x Gigabit Ethernet
HDD	8 x 1.2TB 10K RPM SAS 6Gbps 2.5in Hot-plug Hard Drive
Storage redundancy	Recommended: storage redundancy and protection via RAID
Network connectivity	▪ Recommended for system redundancy: two NIC cards in a redundant configuration ▪ A secured internet connection (PPP, VPN) is needed for support/maintenance purposes
DVD/USB	Recommended for software installations
Fans	Recommended: hot swappable redundant fans
UPS	It is highly recommended to utilize UPS for protecting the mission critical application server. Please consult with your system integrator or installer regarding the specific UPS model which will support the installed equipment.
Power Supply	Recommended: hot swappable redundant power supply