About This Document

This document provides a description of the primary specifications and configuration of the server hardware, additional software and environment requirements, and prerequisites for connected third-party systems to be able to successfully run all of the Sun Nuclear Corporation SunCHECK™ system modules for Patient QA (DoseCHECK™, PerFRACTION™) and Machine QA (SNC Machine™, SNC Routine™).

The server configurations outlined below have been determined based on the requirements of the SunCHECK Patient QA modules, which have the highest demands in terms of hardware and software specifications. These server configurations may also be used to run the SunCHECK Machine QA modules in addition to the Patient QA modules. To determine the configuration required to run the SunCHECK Machine QA modules alone, please refer to the *SunCHECK Machine QA Server Specifications* document (Part Number 1299017).

Recommendations made here are in adherence with SunCHECK Instructions for Use.

SunCHECK Server Specifications and Configuration/Selection

Determine approximate daily patient numbers for Secondary Dose checks, Pre-Treatment QA and Treatment Delivery QA requirements in your clinic and then use the table below to determine the server hardware configuration that best meets your needs. The table provides key specifications to allow configuration of server hardware with your preferred vendor/provider. If a server cannot be supplied locally, Sun Nuclear Corporation is able to supply servers with the configurations shown on a "pass-through" basis if needed.

Please note that Sun Nuclear Corporation does not provide warranty or support for servers we supply on a pass-through basis; these services are provided directly by the original server supplier.

Server Platform	**Approximate Patient Volume Estimates (For DoseCHECK and/or PerFRACTION Modules)**			
	Up to 60 Treatment Delivery QA calculations per day or up to 30 Secondary Dose and/or Pre-Treatment QA calculations per day	From 61 to 120 Treatment Delivery QA calculations per day or from 31 to 60 Secondary Dose and/or Pre-Treatment QA calculations per day	From 121 to 250 Treatment Delivery QA calculations per day or from 61 to 120 Secondary Dose and/or Pre-Treatment QA calculations per day	More than 250 Treatment Delivery QA calculations per day or more than 120 Secondary Dose and/or Pre-Treatment QA calculations per day
Tower-Based Server Platform	**60T Server** • Tower-Format Base System • Dual Intel Xeon 6-Core 2.2GHz Processors • 64GB RAM • Dual NVIDIA Quadro M4000 GPU • Hard Drive/Solid State Drive for Operating System • 5.76TB RAID Storage System (Usable Storage)	**120T Server** • Tower-Format Base System • Dual Intel Xeon 10-Core 2.2 GHz Processors • 128GB RAM • Quad NVIDIA Quadro M4000 GPU • Hard Drive/Solid State Drive for Operating System • 5.76TB RAID Storage System (Usable Storage)	**250T/R Server** • Tower-Format or Rack-Based Server Platform* • Dual Intel Xeon 10-Core 2.2GHz Processors • 128GB RAM • 4 x NVIDIA Tesla M60 GPU • Hard Drive/Solid State Drive for Operating System • 6.0TB RAID Storage System (Usable Storage) * Due to the requirement in this configuration for a quantity of four GPU cards, the base computer platform requires a larger form-factor. This is typically a tower-format enclosure, but enclosures of this type may be rack-mounted using additional mounting hardware.	**Custom-T Server** Custom Server Configuration Required *Please contact your Sun Nuclear Representative*
Rack-Based Server Platform	**60R Server** • Rack-Based Server Platform • Dual Intel Xeon 10-Core 2.2GHz Processors • 64GB RAM • NVIDIA Tesla K80 or P100 GPU • Hard Drive/Solid State Drive for Operating System • 6.0TB RAID Storage System (Usable Storage)	**120R Server** • Rack-Based Server Platform • Dual Intel Xeon 10-Core 2.2GHz Processors • 128GB RAM • 2 x NVIDIA Tesla K80 or P100 GPU • Hard Drive/Solid State Drive for Operating System • 6.0TB RAIDStorage System (Usable Storage)		**Custom-R Server** Custom Server Configuration Required *Please contact your Sun Nuclear Representative*

Note: All specifications provided are minimum requirements; higher specifications and newer models of hardware (e.g. GPU cards) may also be successfully used for SunCHECK configuration.

Software Environment Requirements for SunCHECK Server

The specifications and guidance in this document assume the SunCHECK software applications will be installed on a single server, i.e., with database server software and application server software on one physical server device. Please contact Sun Nuclear Support for further information if separate database and application server installations is desired.

Please note that it is the customer's responsibility to procure the necessary software elements and appropriate licenses, and install/implement the software environment described below unless stated otherwise.

Specification	Requirements/Options
Supported Operating Systems	Microsoft Windows Server 2012 R2 Standard or Datacenter Microsoft Windows Server 2016 **Important Note:** An English Language version of Windows Server OS must be installed for correct SunCHECK operation. User interface localization in a different language may then be selected if required.
SQL Server Software	Microsoft SQL Server 2014 Standard or newer version
MongoDB Software	MongoDB 3.2 **Note:** Mongo DB is included with the SunCHECK Software Installation Tools. This software element will be installed as part of the SunCHECK Software Installation process.
GPU Drivers	Current drivers for the applicable NVIDIA GPU cards are required http://www.nvidia.com/Download/index.aspx?lang=en-us
Network Environment	1 GB/sec Ethernet environment required **Note:** The SunCHECK server should be available via the network to required treatment machines (linacs), Record & Verify/OIS, and Treatment Planning Systems
Network Backup Considerations	Back up and other non-SunCHECK client-related activity should not use the same communications routes as SunCHECK application communications

SunCHECK Client Computer System Requirements

Please refer to the table below for requirements for the client computers from which the SunCHECK applications will be accessed. Because the client machines are not processing data, the requirements are relatively basic:

Specification	Requirements/Options
Operating System	Windows 7 or later (32 or 64 bit)
Regional Settings	U.S. or International
Computer	Minimum Requirements: - Pentium 4 (Dual Core) - CPU Speed: 1.6 GHz - Total RAM: 2 GB - Display resolution: 1280 x 1024 - Color depth: 32-bit
Browser	Google Chrome browser (recommended) or Internet Explorer 11.0

Third-Party System Prerequisites

The following table provides information on prerequisites for third-party systems for correct operation of the SunCHECK software, and specific functionality as indicated:

OEM System/Sub-System	Revision Required	Notes/Comments
Varian		
ARIA Oncology Information System/ Record & Verify System	≥ V11.0	Earlier revisions of ARIA do not include the DICOM Query/Retrieve functionality required for SunCHECK operation.
C-Series and Trilogy 4D Treatment Console	≥ V7.4	Prior versions of the 4D Treatment Console do not record the MU information in the DynaLog files (needed for PerFRACTION operation).
C-Series and Trilogy – PeerSync	N/A	PeerSync is required to be added for C-Series and Trilogy systems, for transfer of DynaLog files to SunCHECK. Note: TrueBeam systems are provided with PeerSync as standard.
Elekta		
MOSAIQ Oncology Information System/ Record & Verify System	≥ V2.5	Required for support of CBCT Recalculation in the PerFRACTION Dosimetry Package Option.
XVI X-Ray Volume Imaging System	≥ V5.0	Required for support of CBCT Recalculation in the PerFRACTION Dosimetry Package Option.
iViewGT™ Electronic Portal Imaging Device and supporting database	≥ V3.4	Required to provide access to EPID data used in SunCHECK. **Important Note:** For iViewGT V3.4.1, 2D analysis using EPID data in PerFRACTION requires the following license from Elekta: iViewGT, linac-specific license activation, Sun Nuclear Corp MRT (part number): 27571.
iCom vx Messaging Interface	>V13.0	One iCom connection is required for correct PerFRACTION and SNC Machine operation in SunCHECK.