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NeuViz Prime Product Datasheet

NEUSOFT MEDICAL SYSTEMS CO.,LTD

NeuViz Prime – Detailed Specifications：

1. Gantry	
Aperture	72cm
Scan FOV	Large: 500mm±2mm Medium: 330mm±2mm Small: 250mm±2mm
Tilt	±30°
Scan speed (360°)	0.259s(option), 0.32s, 0.374s, 0.4s, 0.5s, 0.6s, 0.8s, 1.0s, 1.5s, 2.0s
Partial Rotation Time (240°)	0.17s(option), 0.21s, 0.24s, 0.26s, 0.32s, 0.3 9s, 0.52s, 0.65s, 0.97s, 1.29s
Temporal Resolution	25ms
Focus-to-isocenter distance	570mm
Focus-to-detector distance	1040mm
Information Display System	This screen locates at the top center of the front gantry. All those information will display including patient information, ECG signal, and current system status, even the entertaining graphics which can amuse the patient and put them at ease.
Operation Panel	4 sets in both front and back sides of gantry
Laser Light	5 laser light localizers The accuracy of the external laser light localizer is ±2mm. The accuracy of the internal laser light localizer is ±2mm.
2. Data Acquisition System	
Max. Number of slices/rotation	128
Number of detector rows	64
Number of detector elements	672×64
Total Channels per Slice	1344
Max. Number of projections/rotation	4640
Detector type	Solid-state GOS ceramic

3. X-ray Tube Assembly	
Tube Anode Heat Storage Capacity	Unlimited (Effective anode heat content 30MHU)
Max. Cooling Rate	20kW (1696 kHU/min)
Cooling System	Oil
Focal Spot Size	1.1mm × 1.2mm（Large） 0.6mm × 0.7mm（Small） 0.4mm ×0.7mm（Extra small）
4. Filter System	
Equivalent	Total filtration: Min. 4.8mm Al equivalent at 140kV
Beam Limiting Device	Equivalent to 3.90mm Al
5. Generator	
Max. Power	100kW
Generator Type	High frequency
Tube current range	10mA ~ 833mA
Tube voltage	60kV、70kV、80kV、100kV、120kV、140kV
6. Patient Table	
Max. Table load	205kg/452 lbs; 300kg/661 lbs（Option）
Horizontal motion speed	0.375mm/s-464mm/s
Vertical movement range	430mm-970mm (from cradle bottom to ground)
Vertical motion speed	9mm/s- 15mm/s
Couch horizontal movement range	0-1770mm
Position Accuracy	±0.25mm
7. Host Computer System	
The host computer workplace provides an intelligent and reliable workflow for data acquisition, image reconstruction, and routine post processing at the CT scanner.	
CPU	Host: 4 Core, 3.6GHz Recon: 8 Core, 3.7GHz
RAM storage	≥144GB

Image storage	≥7 TB；1,920,000 512 x 512 Images
Dual Monitors	24 inches 1920 x 1200 Resolution
Additional Storage	CD-R Drive: 700 MB CD Media (1,100 Images) DVD DICOM Drive: 4.7 GB DVD Media (8,400 Images)
DICOM Viewer	Included on each CD or DVD; Automatically started on the viewer's PC
8. AVW Workplace System	
AVW workplace provides the unique advantage of an efficient multi-modality diagnostic workflow at a single workplace. It manages the clinical diagnostic workflow anywhere within the clinical environment.	
CPU	6 Core, 3.3GHz
RAM Storage	≥16GB
Hard Disk	≥1 TB (1,920,000 512 x 512 Images or 520,000 1,024 x 1,024 Images)
Standard Monitor	24 inches 1920 x 1200 Resolution
Dual Monitor* **	AVW supports dual monitors
Additional Storage	CD-R 700 MB 1,100 Images DVD DICOM Drive 4.7 GB DVD Media 8,400 Images
DICOM Viewer	Included on each CD; Automatically started on the viewer's PC
9. System Performance	
Surview	
Surview Acquisition Modes	2 x0.625
Scannable Range	1650mm
Scan width	500mm
Views	A.P, Lateral, Dual
Real-Time surview	Yes
Axial Acquisition	
Axial Acquisition Modes	128x0.625、64x0.625、32x0.625、16x0.625、

	8x0.625、2x0.625
Slice Thickness	0.625mm、1.25mm、2.5mm、5mm、10mm
Scannable Range	1750mm
Spiral Acquisition	
Spiral Acquisition Modes	128x0.625, 64x0.625, 32x0.625, 16x0.625, 16x0.3125(iHD option), 8x0.625
Slice Thickness	0.4mm (iHD option), 0.625mm, 0.8mm, 1mm, 1.25mm, 1.5mm, 2.0mm, 3.0mm, 4.0mm, 5.0mm, 6mm, 7mm, 8mm, 9mm, 10mm
Scan Time	Max. 100s (uninterrupted)
Scannable Range	1650mm (rotation time: 1s, pitch: 1, collimation: 128 x 0.625mm); 1700mm (rotation time: 1s, pitch: 1, collimation: 64 x 0.625mm)
Pitch Range	0.13 to 1.5(continuous)
10. Image Reconstruction	
Recon FOV	50mm~500mm
Max. Recon Speed	Up to 40 images/s with 512x512 matrix
Recon Matrix	512x512、768x768、1024x1024
CT Value	-1024~3072 Support extended -32768~32767
11. Image Quality	
High contrast resolution	
X-Y-Plane	17 lp/cm@0%MTF 11 lp/cm@10%MTF 7.5 lp/cm@50% MTF
Z-Plane	15 lp/cm@0% MTF
X-Y-Plane（ iHD）	30 lp/cm@0% MTF 25 lp/cm@10% MTF 15 lp/cm@50% MTF
Z-Plane（ iHD）	24 lp/cm@0% MTF
Technique	280mA, 120kV, 1s, 0.625mm

Low Contrast Resolution	
Low Contrast Resolution	4.0mm@0.3% 3.0mm@0.5% 2mm@1%
Image Noise	≤0.35%
Technique	Phantom: Catphan 600 280mA, 120kV, 1s, 10mm (Large SFOV)
Uniformity of CT Value	Less than ±4HU (water CT number)
Accuracy of CT Value	Air: -1000HU±10HU Water: 0HU±4HU

12. Image Transfer/Networking

Interface for transfer of medical images and information using the DICOM standard.

Facilitates communication with devices from different manufacturers.

Verification: Provider/User

Storage: Provider/User

Storage Commitment: User

Query/Retrieve: Provider/User

DICOM Print: User

Modality Worklist: User

MPPS: User

DICOM structured Dose Report: Provider

13. Basic Applications

2D	· Image zoom, pan, flip, rotate, batch · Pre-set modify window width and level · Default/Customized hot key for organ-specific Window setting, e.g. for soft tissue and bones · Show image information · Compare image series · Support image storage, including secondary capture, BMP, PNG, JPG, TIFF etc. · Enhance and smooth · Inverse · Add the grid · Enlarge · Reset all · Save

Evaluation Tools	· ROI evaluation: rectangle, ellipse, polygon, irregular, circle · Measurement: line, angle, min. /max. /mean pixel value, polyline, profile, standard Deviation, histogram, area, volume · Annotation: text, arrow
3D	· 3D multi-mode color image · MPR/Curved MPR with batch feature · SSD, MIP, MinIP, AIP, volume rendering · Default 3D position · Clip box and cube · One click bone removal · One click table removal · Image cutting, manual segmentation, volume calculation, volume compare · Tissue measurement and calculation tool · Save and read process results
Film	The Film application is mainly used to receive images, view, management, layout setting, print preview, print and so on: · Customize the number of rows and columns for the page layout · Support asymmetric layout · Monochrome, color DICOM print function · Send images to report · Send images to other data sources · Show surview lines and surview image · Allow users to set and store camera parameters
Auto Film	· Pre-stored protocols can be set to include · auto-filming and review images before printing. · The operator can automatically film the study, immediately after each image, at the end of a series, or after the end of a study. · Support “Combine Images” functionality to manage large number of images · Monochrome and color DICOM print capability are supported
DICOM Viewer	DICOM Viewer is a standalone application burned on disc to help user view CT DICOM images in different layouts. User can make operation and ROI

	measurements on images. · Support multi-series layout and multi-image layout · Annotate and measure · Zoom, pan, adjust window/level, enhance and smooth, etc. · Rotate the images by any angle · View DICOM information · Cine images
Report	The Report application assists doctors to describe patient's disease and diagnosis. Other applications send the DICOM images and data information to the report. Doctors choose report templates or customized templates according to actual requirements, fill in information such as image description and diagnosis and then print. · Create report · Edit report · Confirm report · Save report · Manage report · Export report · Manage case template · Template management: create, delete and edit · Support structured reports
Auto Voice	A standard set of commands for patient communication; before, during and after scanning
Networking	Supports 100/1000Mbps
MPR (Multi-Planar Reconstruction)	· Coronal, sagittal, axial image display · Oblique MPR · CPR image · Batch · CT Image Fusion: Providing fusion visualization of 2 CT images; providing measurement tools
Virtual Endoscopy	· Provide fly-through for cavity organs such as colon, trachea, vessel and vertebral canal etc. · Define fly-through path · Manual or semi-automatic fly-through mode · Record, save fly-through result

14. Advanced Applications	
Bolus Tracking	Through the periodic low-dose scan to track the CT value of certain ROI after countdown from contrast agent injecting, and trigger the clinical scan when the monitored CT value go into the preset CT value region. By this to avoid patients to absorb redundant ray especially in the initial period of contrast agent injection.
SAS	For Bolus tracking and Timed scan, timing process of Tracker series or 1st series of Timed scan can be triggered by the injector. After the end of PID(Post Injection Delay), the scan will begin.
Vessel Analysis	· Bone removal function: head neck, chest abdomen, lower limb, bone fragment · Auto couch removal · Vessel extraction and labeling, main vessels automatic naming · Edit vessel centerline · Vessel measurement tool: position, area, diameter, difference=(ref-charac)/ref diameter, difference=(ref-charac)/ref area
Cardiac Scan	· Prospective ECG scan · Retrospective ECG scan and multi-phase reconstruction · Retrospective ECG scan mA modulation · ECG edit
Cardiac Viewer	· View cardiac images and provide measurement tools · Provide MPR and 3D viewing · Switch data between different phases · Compare different phases data · 4D play · Display cardiac MPR images: Short axis (SA) Image, Horizontal long axis (HLA) image and Vertical long axis (VLA) image · Provide oblique MPR display · Define CPR
Cardiac Calcium Scoring	· Measure calcium score and display pseudo color · Display vessel name, plaque number, pixel

	number, volume/area score, continuous weight factor score, Agatston score and mass score · Add vessel, delete vessel, rename and modify · vessel color
Coronary Analysis	· Automatic cardiac extraction · Coronary artery tree automatic extraction and the main vessels automatic labeling · Coronary artery stenosis measurement · Plaque analysis · 4D film · Report
Cardiac Function Analysis	· The CFA is a tool used to evaluate and analyze left ventricle. · It can display three cardiac MPR images: Short axis (SA) Image, Horizontal long axis (HLA) image and Vertical long axis (VLA) image. · It can show LV Function Results Table, LV · Volume Graph, VR image and Bull's-Eye Map. · It can switch the display between Wall Thickness Map, Regional Wall Thickness Map, and Wall Thickening Map. · Function Results Table display the following values: Ejection Fraction (%), ED Volume(ml), ES Volume (ml), Stoke Volume (ml/beat), Cardiac Output (L/min), Myocardial Volume (ml), Myocardial Mass (g), BSA (mm2)
Arrhythmia Handling**	The ECG signal of premature beat can be automatically recognized. The exposure will not start until the next normal cardiac cycle, which avoids the mistake of the acquisition in premature beat cycle.
CMC (Coronary Motion Clear)*	During coronary CTA, coronary artery would be inconsistent or have blurring in the vessel edge because of the insufficient temporal resolution at a certain time point. CMC traces and synchronizes coronary motion path, improving the temporal resolution and removing the artifact of coronary artery.
Nerve System DSA	Plain and contrast scans are subtracted to remove bones and clearly display vessels.

Brain Perfusion	It is used for brain function analysis as well as for monitoring and planning interventional and radiation therapy procedures. · Displaying time Maximum Intensity Projection (tMIP) image; · AIP image; · Defining reference vessel and displaying the Time Density Curve (TDC); · Calculating and displaying Cerebral Blood Flow (CBF); · Cerebral Blood Volume (CBV); · Mean transit time (MTT); · Time to Peak (TTP) images; · Defining Region of Interest (ROI); Calculating ROI average value of following parameters: · CBF: Cerebral Blood Flow · CBV: Cerebral Blood Volume · MTT: Mean Transit Time · TTP: Time to Peak
Body Perfusion	It is used for organ and tumor function analysis as well as for monitoring and planning interventional and radiation therapy procedures. Organ protocol displays following: · tMIP: time Maximum Intensity Projection · AIP image · CBF: Cerebral Blood Flow · TTP: Time to Peak · HAP: Hepatic Artery Perfusion · HPP: Hepatic Portal Perfusion · HPI Hepatic Portal Perfusion Index · HAI: Hepatic Artery Perfusion Index · TLP: Total Liver Perfusion Tumor protocol displays following: · tMIP: time Maximum Intensity Projection · AIP image · BF: Blood Flow · BV: Blood Volume · MTT: Mean Transit Time

	· PS: Permeability Surface
Lung Density Analysis	Both lungs are extracted. 3D image of the left and right lungs and the trachea are displayed. The volume of emphysema, left lung, right lung and trachea are calculated. The percentage of emphysema volume is calculated.
Lung Nodule Analysis	Lung Nodule Analysis segments, views lesions and calculates lesion information, including Volume, Avg, Max.Z Diam, Volume Double Time, Location, Shape, Border and follow-up.
Dental Analysis	Being related to implantation surgery, panoramic slices and paraxial sections of the mandible and the maxilla are reconstructed. The procedure consists of the following steps: · Defining panoramic views. · Defining sectional planes. · Filming the reference, panoramic and sectional images in true size.
MAR+**	MAR+ is the most advanced patented metal artifact reduction algorithm recon post processing technology. It removes the artifact caused by metal or high CT value.
Virtual Colonoscopy	It enables real-time virtual 3D colonic lumen viewing and is used for noninvasive visualization and quantitative assessment of colon polyps. It auto-segments colon, extracts colon centerline and edits segmentation result and centerline.
Tumor Evaluation	Tumor assessment automatically segments, views lesions and calculates lesion information, including RECIST Diameter, WHO Area, and Lesion Volume, etc. and follow-up.
Fat Analysis*	The Fat Analysis application is used to analyze abdominal fat, segment the subcutaneous fat and visceral fat. The area of subcutaneous fat, visceral fat and outer circumference, etc. are calculated.
Prism Imaging (Dual Energy Scan and Reconstruction) *	Dual energy is designed to offer spectral imaging by KV switching which can add tissue characterization to morphology based on different materials.
Prism Viewer (Dual Energy	Dual energy post processing application which is

Viewer)*	available on AVW workstation. Providing dual energy images visualization and measurement tools: · Automatic best CNR selection; · Multi-material separation such as calcium, iodine and water; · Mono energy monochromatic image; · Virtual non-contrast image etc.
CCT Scan **	Continuous CT (CCT) is a scanning mode that allows the physician to perform extended, low-dose scans while performing a biopsy. The scan can be controlled by pressing the foot-pedal switch in the scanning room or on the CT Control Box. The resulting images display on a remote monitor in the scanning room, providing near-real-time visual feedback during the biopsy. There three modes: CCT single mode, CCT continuous mode and CCT fluoro mode.
AVW Ready for Reading ***	The specified image data can be preprocessed before the user review them. Its functions (e.g. bone removal, couch removal, vessel extraction etc.) are realized by protocol settings.
Bone Density ***	Bone density is an important indicator of bone mass, Which could reflect the degree of osteoporosis and be an important basis for predicting the risk of fracture. Bone Density Analysis application allows measurement of bone mineral density, providing a powerful tool for the diagnosis of clinical osteoporosis and determination of fracture healing.
Lung Nodules ROI ***	Automatic extraction of lung nodules show the 3D shape, volume, and the edges of the nodules. The magnified visualization of the 3D structures of the nodules clearly displays the neighboring nodules, as well as the relationship between the nodules, the blood vessels and the pleura. The follow-up function allows closer observation of the nodule changes to help determine the nature of the nodule.
ThreeDPrint ***	The ThreeDPrint software package is used to import the segmentation results data from an application to the ThreeDPrint application. It uses algorithms to convert the segmentation results data into grid data and then displays it on the interface. The user can

	perform various operations on the grid data which allows editing and optimization to obtain a high-quality grid data model. This grid data model is then saved in a file format the 3D printer can recognize and finally be printed out in 3D.
BoneMeasurement ***	The BoneMeasurement Software provides femur head segmentation and various bone data measurement functions, allowing you to observe bone growth. It also can send the measurement results to reports.
Liver Analysis + ***	The Liver Analysis+ software package assists doctors in analyzing liver and its lesion blood supply system. The main functions include liver segmentation, liver section, extraction of liver lesions, extraction of hepatic artery, hepatic vein, portal vein, multi-phase image fusion, saving and transmitting of processing results.
TAVR ***	Transcatheter aortic valve replacement surgery plan is helpful to evaluate the preoperative aortic valve status and postoperative outcome. It provides comprehensive measurement templates, including size, area, angle, circumference and length, as well as automatic segmentation and positioning of aortic and aortic root centerline for assessment and surgical approach.
Myocardial Perfusion ***	CT Myocardial Perfusion enables visualization and analysis of perfusion deficits in the myocardium. Automated segmentation and registration, along with comparison layouts for rest and stress studies are available in a streamlined workflow.
CFA+ ***	CFA+ segments the cardiac tissue automatically, including left ventricle, right ventricle, myocardium, left atrium, right atrium and ascending aorta.
WholeHeartSeg ***	WholeHeartSeg is a specialized application used for coronary analysis and cardiac function analysis. It

	provides tissue segmentation for the entire heart, including the coronary artery, left ventricle, right ventricle, myocardium, left atrium, right atrium, and aorta. It also provides heart function calculation, coronary stenosis measurement, and other analysis functions, which serve as references for the assessment of cardiovascular diseases.
Super Fusion ***	The Super Fusion Software fuses the images of a patient taken with different devices. This gives physicians a comprehensive overview of all imaging results and helps in diagnosis.
15. Prime Technologies	
O-Dose	O-Dose is a low dose technology based on different patient body sizes, anatomy, tube exposure angles and scanning positions. It automatically recommends a proper mAs with the lowest possible dose and guarantees image quality.
Auto kV	Automatic kV setting to optimize CNR, to minimize radiation dose based on different organs and contrast scan.
ClearView	ClearView is a brand-new raw-data based iterative reconstruction algorithm. It eliminates noise accompanied by ultra-low dose imaging and acquires outstanding image quality.
iHD	iHD function is an advanced technology which improves the spatial resolution up to 30lp/cm @0% MTF.
* Optional feature for Host workplace and AVW workplace ** Optional feature for Host workplace only *** Optional feature for AVW workplace only	
16. Installation	
Outline Dimensions & Weight	
Gantry dimensions	2198mm (L) x 938mm (W) x 1910mm (H)
Gantry weight	1800kg
Gantry package	2370mm (L) x 1030mm (W) x 2250mm (H)
Dimensions	
Couch dimensions	2540mm (L) x 643mm (W) x 1055mm (H)

Couch weight	360kg
Couch package dimensions	2770mmmm (L) x 970mm (W) x 1230mm (H)
Console dimensions	600mm (L) x 800mm (W) x 675mm (H)
Power Supply Requirements	
Rated power	125kVA
Input voltage	380/400VAC 3-phase 5-line 3-phase 4-line(Export is equipped with isolate transformer), power supply from below options:190/200/208/220/230/240/380/400/415/ 440/460/480VAC）
Voltage variation	±10%
3-phase unbalance	≤5%
Frequency	50/60Hz±1Hz
Ground resistance	4Ω(specialized grounding) 1Ω(connected to a grounding system)
Min. Area of scanning room	5550mm×3650mm
Min. Area of operating room	1700mm×3650mm
Operating Room	
Recommended room size	Operating room: 3000mm×4600mm Scanning room: 6000mm×4600mm
Min. Height of ceiling	2010mm
Temperature of scan room	18℃~24℃
Temperature of operation room	18℃~28℃
Humidity of scan room	30%~60%(no condensation)
Humidity of operation room	20%~80%(no condensation)
Atmospheric Pressure	70kPa~106kPa
Temperature of transportation and Storage	-20℃~+55℃
Humidity of transportation and Storage	10%~90%, no-condensing
Running noise	Less than 70dB（A-weighted）
Other Parts	
High pressure injector	DDI-200C (Single)

	DDI-400C(Double) MEDRAD Stellant SX (single tube) MEDRAD Stellant D (double tube) Ulrich XD 2000-2004series Nemoto Smart Shot Alpha A60 (single tube) HuaYao Medical APO100(single tube) HuaYao Medical APO200(double tube) Mallinckrodt Optivantage
Isolation transformer	37kVA
UPS for Console	2kVA

Specifications are subject to change without notice.