NM-SPECT/CT, VAMC NORTHPORT, NY

PO# 632-B50002,

1	**Symbia Intevo 16** The Symbia Intevo 16 is built on xSPECT technology, enabling true integration of SPECT and CT. With xSPECT technology the SPECT information is registered into the CT frame of reference laying the foundation for higher SPECT image resolution and accurate and reproducible quantitative results. The Symbia Intevo 16 has state-of-the-art SPECT and high quality sixteen slice diagnostic CT, providing this system full functionality for all SPECT, xSPECT, and stand-alone CT diagnostic applications in Cardiology, Oncology, Neurology, and General Nuclear Medicine.
1	**Additional System Manuals** Additional user manual for the above selected MI system.
2	**Low Profile 3/8"" Detectors** The low profile high resolution, digital detector assembly includes a .95 cm (3/8 in.) thick NaI (Tl) crystal.
1	**Caudal Tilt** Caudal tilt on Detector 2 allows for precise positioning of static and dynamic acquisitions.
2	**Low_Energy_Hi_Res Collimator Symbia** Low energy (140 keV), high resolution, parallel hole collimator
1	**Symbia Intevo ICC** The integrated collimator changer mounts beneath the patient bed on the Symbia Intevo camera systems. The changer saves time and effort when changing the most frequently used collimators.
1	**Symbia Intevo ACC** This feature automates the exchange of collimators that are housed in the integrated collimator changer.
1	**IQ-SPECT** IQ•SPECT is a unique ultra-fast cardiac solution option for general purpose SPECT systems that enables a selection of optimized protocols: - 4 minutes using standard dose - 8 minutes using half dose - 16 minutes using only a quarter of the dose

Qty	Item Description
1	**Dedicated Reconstruction System** The syngo based high performance workstation is a state of-the-art 64-bit computer architecture capable of handling high resolution data in 512x512 matrix without impeding workflow. In addition, the workplace offers customizable displays and full DICOM archiving and printing functionality. The Symbia Intevo comes fully equipped with this workstation. Hardware: - Two Six-Core 2.9 GHz Xeon CPU - 64 GB RAM - NVidea Q600 Graphics Card - Integrated DVD-R RW - HP Liquid Cooling System - Workflow-based Architecture
1	**Monitor, 19" LCD DICOM** The 19" DICOM Calibrated LCD monitor is designed to meet the demanding requirements of medical imaging. The display features high contrast even under high ambient light conditions that can be encountered in nuclear medicine viewing environments. The gamma curve is exactly matched to CIE/DICOM recommendation, enhancing the ability to display both color and gray scale images. Light output stability is ensured by continuous backlight control throughout the display's lifetime.
1	**Internal ECG for Symbia** The internal ECG gating system provides ECG triggering for the nuclear subsystem for nuclear cardiology examinations. In addition, for Symbia T2, T6, and T16 cameras, the internal ECG gate provides ECG triggering to the CT subsystem for CT applications that require ECG gating. The ECG gate is built into the Symbia patient bed and is controlled by the Symbia acquisition workplace. The leads connect near the head of the patient bed and travel with patient, thus never interfering with scanning. The ECG waveform is displayed on the touch-screen Patient Positioning Monitor.
1	**Under Floor PHS Cable** Kit for routing the cable between patient bed and the Symbia T Series gantry under the floor.
1	**Extra Hand Controller** This option provides an extra hand controller for the Symbia T Series scanners.
1	**Dual Monitor Option** The option enables your MI Workplace to utilize 2 LCD monitors.
1	**Monitor, 19" LCD DICOM** The 19" DICOM Calibrated LCD monitor is designed to meet the demanding requirements of medical imaging. The display features high contrast even under high ambient light conditions that can be encountered in nuclear medicine viewing environments. The gamma curve is exactly matched to CIE/DICOM recommendation, enhancing the ability to display both color and gray scale images. Light output stability is ensured by continuous backlight control throughout the display's lifetime.
1	**Organ Processing for Symbia** This upgrade will add organ processing capabilities to your acquisition workplace.
1	**Cardiology Engine 4DM** The Cardiology Engine Corridor4DM assists in the diagnosis and quantitative assessment of coronary artery disease by enabling the visualization of SPECT studies as well as quantified perfusion assessment.
1	**Cardiology Engine Cedars** The Cardiology Engine Cedars assists in the diagnosis and quantitative assessment of coronary artery disease by enabling the visualization of SPECT studies as well as quantified perfusion assessment.
1	**English Corridor4DM Lang Kit**
1	**English Corridor4DM Lang Kit**
1	**English Cedars Lang Kit**
1	**English Cedars Lang Kit**

Qty	Item Description	Extended Price
1	**Remote Diagnostic Services** Remote Diagnostic Services. A broadband connection is required for full remote diagnostic functionality and optimal system uptime.	
1	**Symbia T Series US Installation** This option includes the mechanical installation of the Symbia T Series camera system.	
1	**UPS for SPECT Camera Systems** Uninterruptible power supply option that provides 10 minutes of back up power to the SPECT gantry enabling the proper shut down in the event of a power loss. Also provides noise filtering and transient suppression. Specifications:5.0 KVA Input configuration: 200-240 VAC, 50/60 Hz, L6-30P Output configuration: 208 VAC, L6-30R	
1	**UPS for e.soft/c.cam (60 Hz)** Uninterruptable power supply option that provides 10 minutes of back up power enabling the proper shut down of the system in the event of a power loss.	
1	**Initial onsite training 32 hrs** Up to (32) hours of on-site clinical education training, scheduled consecutively (Monday - Friday) during standard business hours for a maximum of (4) imaging professionals. Training will cover agenda items on the ASRT approved checklist. Uptime Clinical Education phone support is provided during the warranty period for specified posted hours. This educational offering must be completed (12) months from install end date. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.	
1	**Initial onsite training 32 hrs Gov Offse**	
1	**MI_SYMB_FOLLOWUP** Up to (32) hours of follow-up on-site clinical education training, scheduled consecutively (Monday - Friday) during standard business hours for a maximum of (4) imaging professionals. Uptime Clinical Education phone support is provided during the warranty period for specified posted hours. This educational offering must be completed (12) months from install end date. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.	
1	**CT Cross Trainer (Printed Self Study)** CT Cross Trainer printed self study materials for (1) imaging professional. These materials will provide the user with basic CT knowledge by testing the participant periodically. Successful completion of the self study program will provide the participant with CE credits. CT Cross Trainer printed self study materials for (1) imaging professional. These materials will provide the user with basic CT knowledge by testing the participant periodically. Successful completion of the self study program will provide the participant with CE credits. This educational offering must be completed (12) months from install end date. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.	
1	**MI SPECT Project Management** A Siemens Project Manager (PM) will be the single point of contact for the implementation of your Siemen's equipment. The assigned PM will work with the customer's facilities management, architect or building contractor to assist you in ensuring that your site is ready for installation. Your PM will provide initial and final drawings and will coordinate the scheduling of the equipment, installation, and rigging, as well as the initiation of on-site clinical education.	
1	**Additional onsite training 24 hours** Up to (24) hours of on-site clinical education training, scheduled consecutively (Monday - Friday) during standard business hours for a maximum of (4) imaging professionals. Training will cover agenda items on the ASRT approved checklist if applicable. This educational offering must be completed (12) months from date of purchase order. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.	
1	**Low Contrast CT Phantom & Holder**	

1	**ImageGrid - 12TB raw, 7.3TB usable** ImageGrid DICOM Appliance consisting of storage/server system featuring a minimum of Intel(r) Xeon(r) processor, a minimum of 8 GB Memory, redundant fans, power supplies, Dual Gigabit Ethernet NIC. Integrated RAID Storage for cache (with easy expansion to hundreds of terabytes). No limitations on the number of Remote AE Titles. Advanced rule-based and automated study/image routing, pre and post fetching and image management . Includes 1 year Next Business Day (NBD) on-site service for hardware and 1 year software warranty including software updates.	
1	**Pedestal Rackmount, 24U Rack with UPS**	
1	**1day On-site Install training HW SW**	
		System Total:

Incidental Services Associated with this Quotation:

One complimentary biomedical tuition is included with the purchase of this system. This training must be completed before the end of the warranty period.

Offset Part 14421656 Additional System Manuals

Offset Part 10182968 English Cedars Lang Kit

Offset Part 10182980 English Corridor4DM Lang Kit

Part No. / Product	Description
Symbia Intevo 16	The Symbia Intevo 16 camera system consists of the following integrated features: - Gantry - Patient Bed - Acquisition Workplace - SPECT Acquisition Features - CT Acquisition Features **Gantry** Variable Angle, open design with 70 cm (27.6 in.) patient opening. The two new low profile digital SPECT detectors can be configured at 76° or 90° for cardiac applications and at 180° for all other whole body and general protocols. Optional caudal tilt of one detector allows for optimum detector positioning of static and dynamic acquisitions. The Ultra Fast Ceramic multislice spiral CT detector rotates at 120 RPM (0.5 sec per revolution). The unobstructed gantry base permits planar imaging of seated and standing patients and patients on wheelchairs, or on standard imaging tables, gurneys and hospital beds. The gantry supports circular and non-circular orbits. Autocontour, with infrared real-time body contouring, is a standard component which minimizes patient to collimator distance to 1.2 cm (0.45 in.) in Whole Body and SPECT non-circular orbit acquisition modes. All motorized motions of the system are controlled from hand controller which can be plugged into either side of the gantry. The Patient Positioning Monitor is a touch screen flat panel which can be rotated for a wide range of user access and visibility. It is used for the following functions: - Patient positioning with window and persistence adjustment - Acquisition parameter display (elapsed time, time remaining, view number, count rate, etc.) - Camera information (detector and bed positions) - Gantry control (reconfiguration, collimator change, offset zoom, and adjusting the CT acquisition limits.) A fully integrated source holder is provided for quick and convenient quality control. **Patient Bed** The patient-oriented design of the imaging bed consists of 35.6 cm (14 in.) wide and 15 mm (0.6 in.) thin, carbon fiber pallet, supporting patient weights up to 227 kg (500 lbs). Minimum bed height is 53 cm (21 in.) for easy patient access. Programmable table positions for wheelchairs and gurneys minimize the transport efforts of patients and staff. Integrated rulers on each side of the patient bed allow for quick whole body set up. The bed also provides automatic, uninterrupted table feed for multi-rotation continuous CT volume scanning The patient bed can be easily pivoted to the side for rail-free access of sitting/standing patients, wheelchairs, imaging tables, gurneys and hospital beds. **Acquisition Workplace** The syngo-based high performance workstation provides a multi-modality graphical user interface, keyboard and mouse. SPECT and CT acquisition, quality control, and display are integrated in a single workplace. Workflows for a wide variety of clinical protocols are included. The workplace offers customizable displays and full DICOM archiving and printing functionality.

Part No. / Product	Description
(Continued) **Symbia Intevo 16**	**Hardware:** - Single Quad-Core 2.54 GHz Xeon CPU - 4 GB RAM - 4 X 300 GB SAS Hard Drives - Integrated DVD-R RW - Workflow-based Architecture **SPECT Acquisition Features** **SPECT Acquisition Modes** - Planar static and dynamic - Whole Body - SPECT - Gated SPECT - Dynamic SPECT - Whole Body SPECT **SPECT Features** **Workflow Features:** The system combines acquisition, post-processing (optional), and display into user customizable workflows that automate many of your clinical routines. Besides remembering and storing your parameters for each clinical protocol, the workflow will automatically print, archive, and distribute your results to other devices on your network. **Quality Control:** Use the automatic and manual motion correction features of the system to aid you in the quality of your acquired images. Besides correcting for motion, you can beat normalize your gated studies and create quality control images such as sinograms and linograms to document your results. **3D Orientation:** Reorient your acquired SPECT volumes interactively to achieve the desired patient position. Cardiac and general orientations are supported. If desired, the orientation applied to one volume can be automatically applied to up to 3 additional volumes. **Image Registration:** Multiple techniques are available for accurate registration of your acquired images. Translations and rotations in all 3 planes provide a foundation for accurate registration. The optional automatic registration technique can often assist you in those hard-to-register cases. A landmark registration feature rounds out the available techniques. Triple registration and the choice of output matrix size are also standard features. **Reconstruction:** The reconstruction engine supports up to 5 multi-isotope studies concurrently. Standard SPECT as well as wholebody, dynamic and gated cardiac volumes can be created. Advanced techniques that provide high image quality come standard with our system: - xSPECT Iterative Reconstruction The xSPECT ordered-subset conjugate-gradient reconstruction algorithm uses xSPECT technology to register the SPECT information into the CT frame of reference laying the foundation for higher SPECT image resolution with xSPECT Bone and accurate and reproducible quantitative results with xSPECT Quant Tc99m. - Flash Iterative Reconstruction Flash 3D is our 3D iterative image reconstruction solution. This solution offers the best reconstruction resolution in the market today following NEMA requirements. Flash 3D reconstruction uses a measured 3D collimator beam model in the iteration process. Correct modeling of the collimator distributes the activity over the slices for more accurate reconstruction.

Part No. / Product	Description
(Continued) **Symbia Intevo 16**	With Flash, the spatial resolution of the collimator is modeled to maintain the precise shape of the lesion. As a result, images are reconstructed with more counts in the correct volume, increasing image contrast. The key components behind Flash 3D technology are: - Ordered Subset Expectation Maximization (OSEM) reconstruction algorithm using 3D collimator modeling to increase resolution and decrease noise,while maintaining the exact shape of organs and lesions,when compared to filtered back projection reconstruction. - CT Attenuation Correction that creates very precise attenuation maps from the high quality CT data to correct for attenuation and increase reading accuracy. - Scatter Correction that uses patient specific scatter projection estimates to form a generalized dual-or triple energy window method to compensate for scatter during the iterative reconstruction process. **CT Acquisition Features** **CT Acquisition Modes** - Topogram, scanning perspectives: anterior-posterior (ap), posterior-anterior (pa), lateral (lat) - Spiral CT, continuous volume scanning technique with uninterrupted table feed in the multi-rotation mode - Sequential CT, incremental, slice-by-slice imaging mode with no table movement during data acquisition **CT Features** **CARE Dose 4D:** This software feature provides automatic, real-time x-ray dose management for all scan modes. The minimal x-ray dose level needed to obtain optimal image quality is determined from extensive computer analysis of the Topogram image and also from the data collected during every slice scanned, on a real time basis. This dual stage automatic approach ensures optimal image quality at the lowest possible x-ray dose. With this method of dose control, the initial or starting tube current for every axial slice position is determined from the Topogram image. Then, during the data acquisition for each axial slice, the x-ray attenuation values are closely monitored and the tube current is adjusted, on a real time basis, to optimize the x-ray dose level for the specific organs and anatomy in the x-ray path. Several clinical benefits are achieved with CARE Dose 4D: - Significant x-ray dose reduction (up to 68 %) possible for all body regions scanned compared with standard sequence or spiral scanning - Consistent, optimal image quality with the x-ray dose level unique for every patient and for every anatomical region - Thinner axial slices and/or longer scan ranges possible because of reduced tube loading - Ultra-low dose examinations for pediatric patients **SureView™ – Multislice Image Reconstruction System** - Excellent Image Quality and no slice broadening at any pitch – IQ is kept constant for all scan speeds, independent of the selected range and scan time. - Up to 20% dose savings in spiral mode. **Workstream4D** 4D workflow with direct generation of axial, sagittal, coronal, or double-oblique images from standard scanning protocols. Elimination of manual reconstruction steps. Reduction of data volume up to a factor of 10, since virtually all diagnostic information is captured in 3D slices. Fast image reconstruction of up to 16 images/s in 512 matrix is provided. **Asynchronous Recon:** Asynchronous Recon allows for multiple image reconstructions and reformats, parallel to scanning. With this feature, up to eight reconstruction job requests can be loaded into a scan protocol. Immediately upon

(Continued) **Symbia Intevo 16**	completion of the scan acquisition, these reconstruction jobs are automatically executed in the background without delaying the start of next patient examination. **Image reconstruction:** Reconstruction using raw data zoom with the possibility of freely selecting the image center either before scanning (prospectively) or retrospectively. **Image display:** CT value scale for window setting -1024 to +3071 HU. For very dense objects the CT value scale can be extended from -10240 to +30710 HU. **Multiplanar Reconstruction (MPR)** Real-time MPR for real-time reconstruction of secondary slices. Slice orientation: coronal, sagittal, irregular as well as multi-planar with SIR and Oblique. Cutlines can be determined using the reference tomogram or in sagittal reformatted images (SRI). 512 x 512 reconstruction matrix.
Low Profile 3/8"" Detectors	Symbia Intevo utilizes energy independent low profile high definition digital detectors. Detector assembly technical specifications: - True rectangular FOV of 38.7 x 53.3 cm (15.25 x 21 in.) - 59 photomultiplier tubes – 53, 7.6 cm (3 in.) and 6, 5.1 cm (2 in.) diameter tubes - .95 x 59.1 x 44.5 cm (3/8 x 23 x 17.4 in.) NaI (Tl) crystal material The Low Profile HD Detector features: - Balanced performance between energy resolution and spatial resolution - One, 10-bit high-speed flash ADC per PMT - Variable PMT selection ensures high resolution for all multi-energy and multi-peak applications - Optimized dynamic digital integration time to improve high count rate capability - Individual PMT pile-up correction for improved performance at high count rates - Energy independence maintains clinical performance at all energies including multi-peak and dual isotope studies - Location independence maintains consistent spatial resolution across the field of view - Crystal variation correction for optimal uniformity and linearity across all energies - Single source (Co-57 or Tc-99m) tunes the detector for all energies
Low_Energy_Hi_Res Collimator Symbia	The low energy high resolution collimator has the following technical specifications: - 148,000 hexagonal holes - Sensitivity: 202 cpm/microCurie - Resolution: 7.5mm at 10 cm - Weight: 22 kg (49 lbs)
Symbia Intevo ICC	The unit can hold two sets of low or medium energy collimators including SMARTZOOM collimators. The integrated collimator changer also supports an optional automatic collimator exchange feature.
Symbia Intevo ACC	The automatic collimator exchange is initiated via the patient positioning monitor. Once started, the entire process is fully automated. The integrated collimator changer is a prerequisite and only those collimators housed in the integrated changer are available for automatic exchange.
IQ-SPECT	IQ•SPECT is a unique ultra-fast cardiac solution option for general purpose SPECT systems. The foundation for IQ•SPECT relies on 3 key technological advancements: - SMARTZOOM collimators - Cardio-centric orbit - Advanced reconstruction

(Continued) **IQ-SPECT**	**SMARTZOOM collimators** The SMARTZOOM collimator is capable of magnifying the heart and capture up to 4 times higher sensitivity than conventional LEHR collimators. **Cardio-Centric Orbit** An intelligent Cardio-Centric Orbit is used to maintain the heart at the center of the SMARTZOOM field of view for every view of the acquisition. **Advanced Reconstruction** The advanced reconstruction method fully models the collimator and the camera system while performing distance-dependent isotropic resolution recovery, CT based attenuation compensation (Symbia T Series, Symbia Intevo Excel and Symbia Intevo systems), and energy window based scatter correction. The entire IQ-SPECT solution was carefully designed to address the needs of the clinic, with a selection of optimized protocol options: - 4 minutes using standard dose - 8 minutes using half dose - 16 minutes using only a quarter of the dose
Monitor, 19" LCD DICOM	Additional features include: - 19" TFT panel - minimum of 170 degree horizontal and vertical viewing angle - Optimal picture resolution of 1280 x 1024 - Contrast ratio 450:1 - Maximum luminance 280 cd/m2 - Anti-glare panel surface
Extra Hand Controller	The Symbia T series scanner comes standard with a single hand controller that can be plugged into either side of the gantry. This option adds an additional hand controller for added efficiency in accessing the motorized motions for the patient bed, gantry, and detectors.
Dual Monitor Option	The dual monitor software option enables MI workstations to utilize 2 LCD monitors thereby expanding your clinical flexibility and efficiency when running multiple workflows. This option allows you to optimally compare an old and a new study on the same patient, or to simply process more than one patient at the same time. This option is only supported for LCD monitors. It is recommended that both LCD monitors are the same brand and model.
Monitor, 19" LCD DICOM	Additional features include: - 19" TFT panel - minimum of 170 degree horizontal and vertical viewing angle - Optimal picture resolution of 1280 x 1024 - Contrast ratio 450:1 - Maximum luminance 280 cd/m2 - Anti-glare panel surface
Organ Processing for Symbia	Organ processing provides generic tools for the manipulation of NM images. In addition, it provides dedicated processing protocols for the many different types of exams performed in nuclear medicine departments. Features provided are: - Cardiac: Planar Gated Blood Pool, First Pass, Shunt - Lung: Perfusion, Ventilation, V/Q - Thyroid - Renal: GFR, ERPF, MAG3, Transplant, TER, Ace Inhibitor

(Continued) **Organ Processing for Symbia**	- Gastric - Hepatobiliary - Brain: Patlok, Lassen, IMP, IMP-ARG, NIMS - GSA Liver - Parathyroid: Scaled subtraction - Image manipulation tools: Series Filter, Series Arithmetic, - Series Reformat, and Series ROI and Curve - Manual Fusion
Cardiology Engine 4DM	The Cardiology Engine provides the Corridor4DM Cardiac Suite, a comprehensive set of quantitation programs for the evaluation of SPECT Myocardial Perfusion Imaging The Corridor4DM application includes comprehensive interactive processing and display, generation of 2D, 3D, and polar maps images, calculation of ventricular volumes, myocardial mass and ejection fraction for gated SPECT studies and utilizes gated bloodpool data to calculate left ventricular Ejection Fraction. Compare perfusion and functional polar maps to gender matched normal files, which includes additional support for attenuation correction. Also included are a normal database generator and the ability to create reports within the Corridor4DM application. The Corridor4DM application is an OEM product developed and supported by INVIA. Outputs include DICOM secondary capture files, result files, reports as well as the ability to generate an AVI or TIFF file. Supported software for Profile Reconstruction cardiac data Applications include: Corridor4DM Cardiac Suite
Cardiology Engine Cedars	The Cardiology Engine provides the Cedars Cardiac SPECT Suite, a comprehensive set of quantitation programs for the evaluation of SPECT Myocardial Perfusion Imaging The engine calculates a comprehensive set of cardiac parameters including ejection fractions, volumes, wall motion including right ventricular free wall motion in QBS, wall thickening, perfusion (%). QPS allows for the quantitation of prone SPECT data and of serial perfusion changes. Both 20 and AHA-17 segment scoring models are available. In addition to calculating an Eccentricity Index, QGS also calculates a more regional measure of LV shape known as the Shape Index. Displays include gated slices with contours, a motion frozen display which results in better resolution and contrast by eliminating motion of the cardiac cycle, interactive 3D images, and polar maps. Manual over-ride of contours and DICOM compatible output are additional features. Outputs include DICOM secondary capture files, result files as well as the ability to generate an AVI file format. The Cedars application is an OEM product developed and supported by Cedars Sinai. Applications include: Cedars SPECT Suite
Remote Diagnostic Services	A broadband connection is required for full remote diagnostic functionality and optimal system uptime. The Remote Diagnostic Services option allows for remote access to your networked workstations. This service includes all the necessary hardware, software and configuration required to access your equipment remotely for the purposes of remote diagnostics. Features include: - Image Transfer - Access to automatic Virus Protection updates - Error log retrieval - Remote Workflow revisions - Remote configuration - License management - Remote workstation control via netmeeting
Symbia T Series US Installation	Installation includes: - Complete system assembly - Alignment - System startup - Calibrations

Part No. / Product	Description
(Continued) **Symbia T Series US Installation**	- Performance verification to factory specifications This option is required for all US Installations
UPS for e.soft/c.cam (60 Hz)	Specifications: 1.4 KVA Input configuration: 120 VAC, 5-15P Output configuration: 120 VAC, (6) 5-15R
Pedestal Rackmount, 24U Rack with UPS	24U Rack with 1500 VA UPS (2U rack mounted) for Candelis products.
1day On-site Install training HW SW	1-day on-site Installation of ImageGrid Hardware and on-site Configuration of Software with Customer Modalities and Workstations. Includes on-site training of customer on ImageGrid Software and Administration. The installation of an ImageGrid as well as training of relevant personnel of the customer requires one full day (8AM to 5 PM).