REQUESTING SERVICE: LOGISTICS SVC
SHIP TO: WAREHOUSE (134W)
V.A. Medical Center
1700 SOUTH LINCOLN AVE
LEBANON, PA 17042

PURCHASE ORDER: 595-B89007

Line #	Description	Qty
1	**Vereos System**	1

The Vereos PET/CT system incorporates the industry's first digital solid state detector design for breakthrough advancements in PET imaging capabilities.

Key Features

- Digital PET System:
  - Digital Photon Counting technology enables precise localization of each PET annihilation event to dramatically improve image quality.
  - Exceptional sensitivity for fast scans, low dose imaging, and advanced applications
  - High resolution for lesion detectability and exceptional anatomic detail
  - Enhanced spatial resolution and contrast performance through point spread function (PSF) technique
- Ingenuity CT sub-system which includes:
  - kV stations of 80, 100, 120, 140 kVp
  - 60 kW generator with optional upgrade to 80 kW (105 kW equivalent) generator
  - 4 cm of coverage for better patient compliance and improved clinical capacities
  - MRC Ice: x-ray tube designed for long life and provides the performance required to meet the needs of volumetric scanning
- iPatient user environment improves PET/CT productivity by working the way the user does

The flexibility of this high performance scanner includes features designed to automate clinical exams, ease through reconstruction and post-processing, and aid in accuracy of diagnoses. Above all, the speed and usability of the Vereos system increases patient throughput including:

- Patient handling and set up
- Scan and image acquisition
- Dose Management
- Reconstruction and display
- Post-processing and communication

PET sub-system

PET Detector System

- Crystal Material: LYSO
- Detector Architecture: Digital Photon Counting, with direct conversion of the scintillation event to a digital signal.
  - 1:1 coupling from crystal to light sensor.
  - Efficient photon counting.
- Enables quantitative scanning across the clinical spectrum.
- Uniform spatial resolution across the FOV.

Line #	Part #	Description	Qty

CT Sub-system

System
Rotate-rotate architecture with optimized geometry for low dose imaging.

MRC Ice X-ray Tube
Liquid coolant carries heat away from the MRC Ice X-ray tube so the CT is ready for the most demanding scans, one right after the other. The Philips MRC Ice X-ray tube is designed to be one of the most reliable in the industry. Built for high volume and 24-hour consistency, there is no waiting for the tube to warm up before the scan and no waiting for it to cool down.

CT Detector
Detector design is fundamental to the objective of acquiring high quality images while managing patient dose. Unlike single matrix detectors that simply sum elements, Philips designs configuration-specific detectors that minimize the separation between elements to always provide the highest geometric detector efficiency. Direct-to-digital signal conversion with TACH2 technology reduces dose and improves image quality.

Generator
The Ingenuity generator uses low-voltage slip ring technology to provide a constant high voltage to the CT x-ray tube assembly.
Image Quality

Spatial Resolution
Ultra-high mode: 24.0 lp/cm @ cut-off
High mode: 16.0 lp/cm @ cut-off
Standard mode: 13.0 lp/cm @ cut-off

Noise: 0.27% measured on Philips system phantom (21.6 cm water equivalent)
Low Contrast Resolution: 4.0 mm @ 0.3% as measured on the 20 cm CATPHAN phantom
Absorption Range: -1024 to 3072 Hounsfield units

CT Scanning Modes

Spiral Scanning

- Multiple contiguous slices acquired simultaneously with continuous table movement during scans.
- Spiral exposure: Up to 100 sec of uninterrupted spiral scanning
- Spiral pitch: 0.13 to 1.5 (user selectable

Axial Scanning
- Multiple-slice scan with up to 128 contiguous slices acquired simultaneously (via Ingenuity data acquisition and sampling technique) with incremental table movement between scans
- Fused modes for reconstructing partial volume artifacts free thick slices from thin slice acquisition

CT Scan Times
0.4, 0.5, 0.75, 1, 1.5, 2 seconds for full 360° scans
Test Injection Bolus Timing
This feature establishes the optimum delay time for contrast injection. By using a test injection, a

real-time graph of the enhancement in the selected region of interest is displayed. The delay time is then selected to provide optimal peak contrast enhancement and reduced contrast usage - ideal for CTA.

Bolus Tracking
This automated injection planning technique permits the user to monitor actual contrast enhancement and initiate scanning at a pre-determined enhancement level. Combine with SAS for full automation and efficacy.

Spiral Auto Start
Spiral Auto Start integrates the injector with the scanner, allowing the technologist to monitor the contrast injection to check for extravasation, and to initiate and stop the scan (with the pre-determined delay) while in the scan room.

NOTE:

- *Costs to upgrade an approved injector and any cabling are the responsibility of the user.*
- *Compatible with following Injectors:*
  Medrad Envision/Stellant, Medrad Vistron, Liebel-Flarsheim, Tyco CT 9000, Medtron CT 2, Nemoto Dual Shot, Tyco OptiVantage DH, E-Z-EM Empower, Swiss Medicare, Ulrich Injectors

Dose Management
Philips' DoseWise philosophy is a set of principles and practices that ensures the best possible outcomes with minimal risk to patients and staff. Vereos PET/CT systems employ a number of features that help provide extremely high dose efficiency.

Digital Photon Counting Technology
Minimizes the required PET radiation dose by utilizing high stopping power crystal material (LYSO) and 3D acquisition with full axial acceptance angle, and Digital Photon Counting to more efficiently capture scintillation events.

NEMA XR-25 (DoseCheck)
DoseCheck enables the ability to set dose thresholds and provides alerts and notifications to the scan operator when radiation dose levels will be exceeded.

There are two threshold level values: Notification Values, Alert Values

Notification values apply to a single image series, and Alert values apply to an overall exam. Both CTDIvol and Dose Length Product (DLP) values can be set.

For Alert values that will be exceeded, the system requires the user provide name and password information before proceeding to scan. Also, an additional indication will appear in the Dose Info Page Series when the Notification or Alert values have been exceeded during a scan.

DICOM Structured Report for Dose (DICOM SR)

Dose SR complies with the IEC, DICOM PS and IHE standards for dose reporting. The report includes CTDIvol and DLP dose values.

Dedicated Pediatric Protocols
Dedicated CT protocols are developed in collaboration with top children’s hospitals, age and weight-based infant and pediatric protocols enhance image quality at low dose.

DoseRight ACS (Automatic Current Selection)
Personalizes the dose for each patient based on the planned scan by suggesting the lowest mAs settings to maintain consistent image quality at low dose throughout the scan.

DoseRight Angular Dose Modulation
Automatically controls the tube current angularly, increasing the signal over areas of higher attenuation (e.g., lateral) and decreasing signal over areas of less attenuation (e.g., anteroposterior).

iDose
Automatically controls the tube current, adjusting the signal along the length of the scan, increasing the signal over regions of higher attenuation (e.g., shoulders, pelvis), and decreasing the signal over regions of less attenuation (e.g., neck, legs).

Dose Displays

- Volume Computed Tomography Dose Index (CTDIvol)

- Dose-Length Product (DLP)

- Dose Efficiency

PET/CT User Environment

iPatient

Philips' iPatient is an advanced platform that delivers focused innovations to facilitate patient-centered imaging, now and in the future. This powerful Windows® 7-based platform puts our customers in control of innovative solutions that drive confidence and consistency through personalized patient centric workflow, increase the ability to do complex and advance procedures with ease and efficiency. iPatient removes unnecessary complexity and allows our customers to get the job done while driving confidence and consistency 24/7, and prepares for future innovations that will help improve the care being delivered to the patient.

ExamCards
ExamCards are the evolution of the scanning protocol. With ExamCards, the results are planned, not the acquisition as traditionally done in CT; this reduces decision points and clicks, saves time and improves operator-to-operator consistency. ExamCards can include reformatted CT, MPRs, MIPS, AC and non-AC PET, and other results, all of which will be automatically reconstructed and can be sent off to where they will be read with no additional work required by the operator.

The Ingenuity Console provides a user environment that is flexible and available wherever it is needed. Designed in collaboration between Philips and its customers, it is a powerful set of PET and CT applications that improves productivity by working the way a user does. Users can do all of their planning, scanning, visualization and archiving in a simple, easy-to-use graphical user interface (GUI) that is harmonized across Philips Medical Systems.
Guided Flow
Logical Guided Flow graphical user interface increases productivity through ease-of-use features:

- Features and functions are visible, not hidden.
- Most common operations are shown most prominently.

Line #	Part #	Description	Qty

A top-level workflow bar directs the user along important tasks and provides non-linear movement between functions without losing any current work. This provides the user with maximum flexibility for viewing, performing applications, filming or reporting.

Patient handling & set-up
Philips' "Design for Life" approach provides high levels of flexibility for users and comfort for patients. Philips helps improve productivity during patient handling and setup through a variety of features, making patients more comfortable and making technologists' jobs easier.

Gantry Features

- *Gantry Aperture*: 700 mm diameter
- *Scan Control Panel*: Controls and displays for patient couch elevation and stroke are located on both sides of the gantry.
- *Scan Control Box*: Gantry and patient couch controls and displays are located conveniently at the operator's console. Additional functions include emergency stop, intercom, and scan enable/pause buttons.
- *AutoVoice*: A standard set of commands for patient communication – before, during and after scanning in multiple languages. Also provides the ability to record customized messages.
- *Intercom System:* Two-way intercom allows patient monitoring and communication.

Patient Table

- Stroke: 1900mm
- Scan range (PET & CT): 1900 mm
- Table load capacity: 195 kg (430 lbs.)

Table Accessories
From extra padding to optimal support, these table accessories prevent fatigue and discomfort and give both patients and technologists a sense of security. The patient comfort kit includes a patient restraint kit, foam head holder, table pad, foam arm rest, arm boards and a knee pad.

Scan Planning
The iPatient console provides intuitive registration and easy entry of patient information and clinical procedure selection, using anatomic graphical display and sample images.

Expert Protocol Planning
Tailor protocols to meet specific needs via a selection of parameters optimized for certain studies.

Automatic Procedure Selection
Maps the procedure selection from the HIS-RIS with individual scan protocol(s) simplifying the scanning process. Only the most relevant scan protocol(s) for any requested procedure are shown to the user, ensuring that only the desired scanning procedures are performed. This is especially useful for infrequent users of the CT scanner.

Scan Ruler
Provides a visual, highly interactive view of the entire procedure that allows 1-click updates to important study events.

Preset Post-processing
User-defined presets improve workflow, by automatically opening the relevant post-processing

applications for a specific type of exam. For example, PET reconstruction can be set up to run concurrently with data acquisition resulting in shorter reconstruction time.

Spiral Scanning
Multiple contiguous slices acquired simultaneously with continuous table movement during scans allowing for multiple, bidirectional acquisitions

Axial Scanning
Multiple-slice scan with incremental table movement between scans.

Patient Centering on Surview
Centering the patient properly is one of the most important factors in getting good image quality. Traditionally, patients are centered using the gantry laser lights. With this advanced feature it is now possible to improve patient centering using the lateral Surview with real time feedback.

Surview Plan
Planning via interactive mouse control of multiple, independent acquisition series of any type on Surview image. Linking of the PET plan to the CT streamlines workflow by reducing operator interaction.

Dual Surview Planning
Provides flexibility in exam planning with both anteroposterior and lateral surviews.

CT Dynamic Focal Spot
Dynamic Focal Spot (DFS) doubles the data sampling density from the detectors effectively doubling the number of detectors and providing ultra-high spatial resolution in axial and spiral scanning.

Manual Scan
Places slice-by-slice scans under operator control with on-line or off-line reconstruction, background image archiving to local or remote storage devices. At any time, the operator is able to switch from automatic to manual scan and back.

Automatic Scan
Enables automatic execution of pre-planned studies, with concurrent, on-line or off-line reconstruction, background image archiving to local or remote storage devices, without operator intervention.

Productivity Tools

DICOM® Modality Worklist
Provides HIS/RIS interface through DICOM Modality Worklist service class; enhances clinical workflow by importing patient demographics and study information from an information management system.

DICOM® MPPS
Provides performed exam information (start/end/info) to HIS/RIS using DICOM MPPS (Modality Performed Procedure Step) service.

Split Study
Many times multiple orders or accession numbers are generated for a patient's CT scan that require only a single scan acquisition. In these instances Philips' Split Study feature allows the user to virtually split the acquisition so that proper accession numbers are assigned to specific areas of the scan acquisition (i.e. chest slices to the chest accession number, etc.) and billing and tracking is completed accurately and appropriately. By assigning the accession numbers quickly and easily during scan setup,s can information is matched accurately in all subsequent steps (matching, reporting, archiving, billing, etc.). Philips' Split Study reduces error and improves workflow efficiency.

Line #	Part #	Description	Qty

Prefetch Study
This feature searches the database (PACS) for previous patient studies (CT, MR, CR, RF). After location and selection, these studies are then sent in the background to the configurable destination.

Reconstruction and Display
PET and CT Data reconstruction is designed to provide the best possible image quality. The Vereos High Definition reconstruction system employs list mode, time-of-flight PET reconstruction and true cone beam CT reconstruction algorithms utilizing Philips patented back projection hardware.

PET Reconstruction

High Definition reconstruction
Philips' state of the art time-of-flight reconstruction algorithm is a fully 3D iterative technique that utilizes list mode data to reconstruct event-by-event. Reconstruction geometry is defined using the line of response (LOR) as well as Spherically Symmetric Volume (SSV) approach. Time-of-flight performance can be optimized through a variety of reconstruction settings including large kernel, high-quality reconstruction and point spread functionality (PSF). The advanced design allows for extremely fast reconstruction speeds as fast as 30 seconds/bed post-acquisition for a typical whole body scan without degradation in image quality performance. Multiple reconstructions of collected PET data may be performed following the acquisition.

CT Reconstruction

CT Reconstruction Modes
Concurrent: Axial and spiral modes - image reconstruction concurrent with acquisition

Off-Line (batch): Background image reconstruction of user-defined groups of raw data files with automatic image storage.

ClearRay Reconstruction
A revolutionary solution to beam hardening and scatter artifact, modeling and simulation technology pre-computes and stores beam hardening and scatter corrections in a database that is later referenced to create a correction that is personalized to each individual patient. As a fully three-dimensional technique, contrast scale stability is preserved across different patient sizes, image uniformity is improved, and organ boundaries are better visualized.

Evolving Reconstruction
Provides real-time 256 x 256 matrix image reconstruction and display in step with spiral acquisition. Images can be modified for window width and level, zoom and pan prior to reconstruction. At the end of the acquisition, all images are updated with the desired viewing settings.

Fast Preview
Display real-time 512x512 matrix image reconstruction and 5mm x 5mm contiguous slice display with helical acquisition or off-line reconstruction. Images can be modified for window width and level, zoom, and pan prior to larger matrix reconstruction at the end of the acquisition.

Adaptive Filtering
Adaptive filters reduce pattern noise (streaks) in non-homogenous bodies, improving overall image quality.

Line #	Part #	Description	Qty

RapidView IR Reconstruction
RapidView IR reconstruction is the result of years of advanced research, and was designed specifically to satisfy the performance requirements and processing power needed to seamlessly integrate the iDose4 Premium Package into your department. RapidView IR provides dramatic improvements in workflow by displaying images at breakthrough rates, regardless of acquisition speed or reconstruction parameter. The majority of factory protocols with iDose4 are reconstructed in less than a minute, with reconstruction speeds up to 18 images per second with iDose4 and up to 25 images per second with standard reconstruction.

CT ConeBeam Reconstruction Algorithm - COBRA
Philips' patented Cone Beam Reconstruction Algorithm (COBRA) enables true three-dimensional data acquisition and reconstruction in spiral scanning. This avoids and/or corrects artifacts present in reconstruction by reducing pixel to noise ratio, resulting in superior multi-slice image quality.

Reconstruction parameters
Any study can be set up to automatically reconstruct using various reconstruction parameters. Exams can be tailored online while planning the scan, or during off-line recon. Up to six different reconstruction assignments are possible for each study. Image reconstruction parameters include image matrix, filters, enhancements, zoom and pan, and archive.

Ultra High Resolution Matrices
Exclusive to Philips, 768 x 768 and 1024 x 1024 image reconstruction matrices display all of the high-resolution data acquired in applications, such as inner ear, spine and high-resolution lung imaging. As resolution increases, larger matrices are required to display the full resolution for the reconstructed field of view.

Post-processing and communication

Host Computer
Computer Architecture: Windows-based host computer
Main Memory: 6.0 GB RAM

Display Monitor
Dual Monitor Configuration
Expands the iPatient workspace by utilizing two flat panel monitors side-by-side. The left monitor is utilized for scanning operations while the right is used for post-processing activities.

Image Processing
The interactive image viewer is designed for fast, efficient and simple image review and filming purposes. Images can be handled individually or in user-selected groups.

- Image viewer window: Displays a single image or a selection of images.
- Zoom & Pan*:* Magnification from 0.8 to 10 times
- Scroll Bar, Leaf and Cine, Invert Image, Image Parameters Display

Image Graphics
To help interpret clinical images, a variety of text and graphic aids can be individually positioned and manipulated with the mouse:

- Text annotation
- Cursors for pixel value measurements.

Line #	Part #	Description	Qty

- Regions of Interest (ROI) - elliptical, rectangular, curved or freehand, with instantaneous calculation and display of area, average pixel value and standard deviation. Values of several ROIs may be added or subtracted.
- Lines, grid and scales for distance measurements, curved and freehand lines for measuring any shape.
- Arrows for pointing to features.
- Angle measurements.
- Histogram of pixel values in a user-defined region of interest.
- Profile of the pixel values along any line.
- Grid with adjustable spacing for distance assessment

Window Control

- Eight user-defined preset windows provide fast and convenient window setting. Mouse-driven fine adjustments of the window center and width enable optimal image viewing
- Highlight Window: paints user-defined range of CT densities in color.
- Double Window: Simultaneous displays two independent CT density ranges on the same image, i.e. thorax slice with lung and mediastinum windows
- Invert Window: Ability to toggle between negative and positive image.

Fusion Viewer
The interactive PET/CT image viewer is designed for fast, efficient and personalized image review and filming purposes.

- Unparalleled flexibility in customization: all images are resizable based on user needs
- Dynamic adjustment of modality, view, orientation and size
- Fast sequential access to patient studies for superior workflow
- Intuitive toolbar controls for image review
- "Auto-Hide" of controls for screen maximization
- One click access to routine functionality (triangulation, SUVs)
- Comprehensive region of interest contouring tools with DICOM RT Structure Set export
- Easy saving of key images (DICOM, JPEG, AVIs) for distribution
- One click addition of key images for reports

Post-Processing Analysis Tools
SlabViewer
MPR- Multiplanar Reformation
Maximum or Minimum Intensity Projection (MIP)
3-D SSD Reconstruction

MasterCut
With the MasterCut feature, MPR (Multiplanar Reformatting) curved cuts along vascular structures can be defined on Maximum Intensity Projection (MIP) or volume rendered images to display panoramic and cross-sectional views that accurately visualize the vasculature.

RelateSlice
RelateSlice is a Philips-exclusive tool provided in Volume Rendering, 3-D SSD, MIP, and MPR, that correlates the axial image to a user-selected location on multiplanar views and renderings. RelateSlice makes it easy for a user to compare the axial image to its post-processed presentation, improving the user's productivity and diagnostic confidence.

Line #	Part #	Description	Qty

Masterlook
An automated real-time image enhancement, or smoothing, that can be defined for up to three independent density ranges, such as lung, soft tissue and bone.

3-D Small Volume Analysis
3-D Small Volume Analysis permits tumor or nodule characterization with respect to growth rates within the 3-D application. This tool uses automatic segmentation for help in identifying a solitary nodule or tumor (early staging of lung cancer), and measures volumetric parameters such as nodule volume, long axis, and short axis for follow-up purposes.

Q-CTA - Quantitative CT Measurement Tool Package
Q-CTA is a tool kit for quantitative measurements of anatomic structures, such as vasculature pathology from 2-D, 3-D or volume-rendered images.

Volume Rendering
Philips advanced volume rendering 3-D visualization software provides unique simultaneous visualization of vasculature, soft tissue and bone. Unlike conventional 3-D or MIP, volume-rendering visualization offers real time interactive control over opacity and transparency values. This permits viewing through and beyond surrounding structures, such as metallic stents and arterial calcifications, and virtually eliminates the need for organ segmentation.

Organ ID
Automatically isolates lung images for better viewing, including lung limit detection, zoom and pan setting, lung windowing, image enhancement, and image filming.

Vessel Analysis
Ingenuity offers a set of tools for general vascular analysis. It allows the user to easily remove bone, and extract and segment the vessels to quickly perform typical measurements such as intra-luminal diameter, cross sectional lumen area, and length of vessel's segments, and angle of the vessels. The package allows the user to display the dataset using volume rendering, Average, or MIP with cross sections images that can be used to delineate aneurysm, presence of mural calcification and lining mural thrombus, branch vessel (celiac, mesenteric, renal) and the ilio-femoral arterial runoff circulation.

ScanTools and ScanTools Pro
The ScanTools package of advanced components and productivity features streamlines routine imaging studies, and comes standard with your scanner. ScanTools Pro is a supplemental set of tools standard on your scanner that enhances productivity, workflow, and diagnostic confidence. The components of ScanTools and ScanTools Pro are located throughout the quote under the appropriate headings.

<u>Image Management and Archiving</u>
Image archiving is organized according to the DICOM 3.0 hierarchical model, in a DICOM 3.0 compliant image format. Loss less image compression/decompression algorithm is used during image storage/retrieval to/from all local archives. Images can be auto-archived to selected archive media.

DVD-RAM
DVD-RAM is an archive solution for storing CT and other modality datasets. It provides an inexpensive, reliable method for high-speed random access recording. DVD-RAM disks are written with proprietary Philips format and are only readable on Philips EBW (v3.0.1 or higher) and PET/CT scanner units (v3.3 or higher) with DVD-RAM.

Line #	Part #	Description	Qty

Networking/Connectivity

Network Requirements

Network connections should be located within 10 feet of the console. The Ingenuity TF supports 10/100/1000Mbps (10/100/1000BaseT) network speeds. For optimal performance, Philips recommends a minimum of 100Mbps network speed (1Gbps preferred) and for the PET/CT network to be segmented from the rest of the hospital network.

DICOM Connectivity

Ingenuity's full implementation of the DICOM 3.0 communications protocol allows connectivity to DICOM 3.0 compliant scanners, workstations, and printers; supports IHE requirements for DICOM Connectivity. Further details on connectivity and interoperability are provided within the DICOM Conformance statement.

Additional features

Other Included Items

- Computer cabinets
- PET sub-system power protection
  - Provides short temporary backup power to several critical components of the PET/CT scanner allowing for proper shutdown of the system.
  - Continuous power will be supplied to the PET gantry to keep power to the detectors, console and CIRS reconstruction computers. This is useful when short (less than 5 minute) power loss occurs.
  - For complete system protection, a full UPS is required.
- Sources (shipped separately), phantoms, and fixtures for daily & monthly QC (PET& CT)
- User documentation.

Vereos PET/CT Clinical Education Package:

CT iPatient Essentials OffSite Education: Philips will provide up to two (2) lead technologists, as selected by customer, with in-depth lectures covering basic clinical applications, Philips-specific imaging techniques, protocol optimization and scan parameters. A CT "system emulator" is used during the lab sessions to simulate all basic scanning operations without x-ray exposure. Students will graduate from this class with an 80% understanding of the base system functionality. The remaining 20% is covered during the Handover OnSite experience. This twenty-eight (28) hour class is located in Cleveland, Ohio, and is scheduled based on your equipment configuration, geography, and availability. Due to program updates, the number of class hours is subject to change without notice. Customer will be notified of current, total class hours at the time of registration. This class is a prerequisite to your equipment handover OnSite Education, and should be attended no earlier than two weeks prior to system installation. ASRT CEU credits may be available for each participant that meets the Guidelines provided by Philips during the scheduling process. Travel and lodging are not included, but may be purchased through Philips. It is highly recommended that 989801292078 (CT Full Travel Pkg OffSite) is purchased with all OffSite courses.

Pre-Handover Onsite Education: Philips Education Specialists will provide twenty-eight (28) hours of Vereos PET/CT Onsite Education for up to four (4) students, selected by customer, including technologists from night/weekend shifts if necessary. All training must be delivered within the same visit. Course content will include information intended to provide an introduction to the

Line #	Part #	Description	Qty

Vereos PET/CT scanner, the newest PET technology hardware. Students should attend all three onsite training sessions which build on prior training events. CEUs are not available in all cases. Please read Guidelines for more information, which will be provided to you during the scheduling process.

Note: For optimum results Philips limits Physician training to two (2) physicians on the Intellispace Portal for Nuclear Medicine Viewer. All additional participants or packages require purchase of Intell ispace Portal applications training.

Initial Handover Onsite Education: Philips Education Specialists will provide twenty-four (24) hours of Vereos PET/CT Onsite Education for up to four (4) students, selected by customer, including technologists from night/weekend shifts if necessary. All training must be delivered within the same visit. Course content will include information intended to provide the most innovative technology of the digital Vereos PET/CT scanner, the newest PET technology hardware. Students should attend all three onsite training sessions which build on prior training events. CEUs are not available in all cases. Please read Guidelines for more information, which will be provided to you during the scheduling process.

Follow-up On-site Education: Philips Education Specialists will provide twenty-four (24) hours of Vereos PET/CT On-site Education for up to four (4) students, selected by customer, including technologists from night/weekend shifts if necessary. All training must be delivered within the same visit. Course content will be customized to the customers' needs and information intended to provide the most innovative technology of the digital Vereos PET/CT scanner. Students should have attended the Pre-handover and Initial handover training sessions to build on prior training events. CEUs are not available in all cases. Please read Guidelines for more information, which will be provided to you during the scheduling process.

Note: For education listed above site must be patient-ready. Philips personnel are not responsible for actual patient contact or operation of equipment during education sessions except to demonstrate proper equipment operation. Completion of (2) CT modules and (2) PET Modules will be required prior to attending onsite essentials education. Students access didactic courses through the Philips On-Line Learning Center. CT modules consist of an overview of physics, scanner generations, a review of hardware and software components, data acquisition, and image reconstruction. PET modules include an overview of physics, instrumentation, radiopharmaceuticals, patient preparation, and radiation safety.

Recommendations: If CT Cardiac option is purchased, it is recommended that 98981292425 (CT Cardiac Off-site Educ 28h) is purchased as well as 989801292078 CT Full Travel Pkg. 989801292238 (CT Cardiac On-site Educ 16h) or 989801292450 (CT Cardiac On-site Educ 24h). If PET Cardiac is purchased, it is recommended that 989801292275 (PET Cardiac On-site Educ 8h) or 989801292276 (PET Cardiac OnSite Educ 16h) also be purchased. If system will be used for Diagnostic CT, for an experienced CT Technologist it is recommended that 989801292424 CT Brilliance Essentials Offsite 28h as well as 989801292078 CT Full Travel Pkg also be purchased. If 4D Respiratory Gating is purchased it is recommended that 989801292133 (PET Add On-site Clin Educ 16h).

Education expires one (1) year from equipment installation date (or purchase date if sold separately). Ref#92618969970971-20170615

2		**128-Slice CT**	**1**

Line #	Part #	Description	Qty

Vereos comes with the following:

- 128 rows of data per rotation that are sent to be reconstructed
- kV stations of 80, 100, 120, 140 kVp
- 0.4 sec rotation
- 4 cm of coverage for better patient compliance and improved clinical capacities
- MRC Ice: x-ray tube designed for long life and provides the performance required to meet the needs of volumetric scanning

3 **60 kW Generator** **1**

Enhances CT system performance with 60 kW on-board, high frequency power generator with:

Three selectable voltages: 90, 120, 140 kVp

Maximum Current: 500 mA (at 120 kVp)

4 **Point Spread Function** **1**

Using an estimate of the point spread function (PSF) of the system, a deconvolution method, also known as the Richardson-Lucy (R-L) algorithm is used to improve the image resolution. It is an iterative method that attempts to maximize the likelihood of the restored image by using the expectation-maximization algorithm.

5 **Local Kit Vereos - ENG** **1**

Includes English language user documentation (paper and electronic)

6 **PET/CT ECG** **1**

ECG Gating system for PET and CT cardiac imaging. The system provides a color display with touch screen operations for easy information input and intuitive onscreen navigation with one-touch commands. Includes cart for easy movement and storage.

NOTE: This item is only supported with version 3.5 or higher. If selected it will only be deliverable upon the release/installation of version 3.5 software release. Selection of the ECG Gating system allows for PET cardiac gating. For CT cardiac gating you must select either Rate Responsive CV Toolkit (NCTC985) or Heartbeat CS Pro Package (NCTA045) along with the PET/CT ECG Gating system (NPTB595).

7 **ECG Monitor - English** **1**

8 **Mass Storage Peripheral** **1**

The Mass Storage Device provides 6TB (5.4TiB) of RAID protected system attached storage for patient records.

9 **Enhanced DICOM Vwr Study Distr** **1**

The Enhanced DICOM Viewer provides advanced features such as multi-planar reformats for referring physicians and other recipients of DICOM patient studies on a CD/DVD.

Key Features:

- Triangulation
- Maximum intensity projection

Line #	Part #	Description	Qty

- Multi-planar reformats
- Image display modes for PET, CT image data with Fusion
- Simple, quantitative SUV measurement

NOTE: This item is only supported on systems running GEMINI 3.5 version or higher. If selected, it will only be deliverable upon the release/installation of GEMIN 3.5 software release.

10 **4D Time Of Flight Toolkit** **1**

Philips' 4D TOF (Time-of-Flight) combines the benefits of TOF PET imaging and respiratory correlated imaging for PET/CT. The toolkit enables the user to trigger a scan at a particular breath level (axial and/or spiral CT prospective gating and PET prospective gating) or scan the thorax at different pulmonary phases (spiral retrospective-- CT and PET retrospective gating) and reconstruct the image data from those phases, minimizing artifacts caused by respiratory motion. Philips 4D TOF toolkit gives the clinician tools to accurately reproduce similar respiratory conditions over multiple exams when it is important to visualize a tumor at the same respiratory phase where radiation therapy will later be delivered.

By matching the scan phase with the treatment phase the clinician can be assured of providing the CT simulation plan that delivered the highest tumorcidal dose while maximizing the amount of healthy tissue that is spared. It will also allow multi-phased studies to be imported into a therapy planning system. The user can calculate dose and view the dose curves on different phases of the same anatomy.

The toolkit includes:

- PET/CT acquisition protocols for CT and PET gating
  - Prospective CT gating triggered by an external respiratory device on a pre-selected phase
  - Retrospective Tagging enabling ultra low pitch spiral CT acquired and correlated to the respiratory phase of an external respiratory device
  - Prospective and Retrospective TOF PET data acquisition
  - Respiratory correlated attenuation correction for PET reconstruction
- SUV calculations using respiratory gated image data
- DICOM export of reframed static data for CT and PET
- Bellows pulmonary gating device: a pneumatic mechanism placed around the patient's chest, dynamically observing changes in pressure caused by motion of the chest with a transducer linked to the GEMINI TF 16 & 64 scanners.
- Mayo Device patient feedback device: This device was developed by Mayo Clinic and provides intuitive visual feedback to patients on their respiratory cycle. This feedback can be used to coach patients to better manage their breathing during examinations. The feedback device is only compatible with the Bellows gating device.
- Cables and brackets for connecting to the Varian RPM pulmonary gating device. The Varian RPM device itself is not included and must be purchased separately from Varian. Compatible with Varian RPM version 1.7.

NOTE: This item is only supported on systems running GEMINI 3.5 version or higher. If selected, it will only be deliverable upon the release/installation of GEMIN 3.5 software release.

11 **Solid Source TF 400uCi** **1**

Quantity of one (1), Na-22 radioactive source at 400 uCi, for quality control purposes.

Line #	Part #	Description	Qty
12		**Point Source Disk, 10UCI, NA-22**	**6**
13		**VEREOS PRE-WIRING KIT**	**1**
14		**Veyron Floor Pour kit**	**1**
15		**UPS, 120 kVA/400 V/50 Hz**	**1**

Uninterruptible Power Supply (UPS) with Voltage Regulator. Provides power to permit up to 30 minutes of scanning after a power failure. This allows the user to complete the patient scan, save data and make an orderly system shut-down. Also insures that incoming power meets Philips Healthcare's specifications for optimal PET/CT system reliability and performance. The UPS regulates utility voltage deviations, stabilizes line frequency, and subdues line voltage surges & spikes, prevents loss of phase and total power outages, while also ensuring positive phase rotation.

Input voltage: 480 VAC/50 Hz.

Refer to Planning Reference Documentation for more details.

16		**Computer Table**	**1**

Computer Table, for the Brilliance Console or the Extended Brilliance Workspace, provides a large enough working space (120cm) to accommodate dual monitors and other peripheral devices.

17		**Operator's Chair**	**1**

One (1) standard height operator's chair.

18		**O-MAR**	**1**

Metal Artifact Reduction for Orthopedic implants reduces artifacts in image data caused by high density metal objects such as prosthetic hip replacements. This artifact reduction may aid diagnosis and help treatment planning accuracy by enhancing visualization of critical structures and target volumes

Prerequisite: For installed base upgrades on Brilliance CT-16-slice, Brilliance CT 64-channel, Brilliance CT 64-channel w/ Essence technology, Ingenuity family and iCT family. O-MAR requires iDose4.

Prerequisite: For installed base upgrades, iPatient (v4.X) installed or ordered

19		**iDose4 for PET/CT**	**1**

iDose4 is an iterative reconstruction technique that gives you control of the dial so you can personalize image quality based on your patients' needs at low dose. When used in combination with the advanced technologies of the Philips CT scanner families, this 4th-generation reconstruction technique provides a unique approach to managing important factors in patient care — a new era in low-energy, low-dose and low-injected-contrast imaging.

iDose4 balances high image quality, low dose, natural appearance, and easy workflow. iDose4 iteratively removes noise, prevents artifacts, and preserves morphological information using statistical and structural models in both projection (raw) and image domains.

iDose4 reconstruction is achieved in seconds rather than minutes. iDose4 features the RapidView IR console — hardware advances designed specifically to satisfy the performance requirements

Line #	Part #	Description	Qty

and processing power needed to reconstruct the majority of reference protocols in 60 seconds or less.

As part of our ongoing commitment to streamlining workflow for radiologists, iDose4 is easy to use and easy to adopt into your existing standard of care. The operator simply plans the scan as they normally would. Designed to seamlessly integrate into your CT department, iDose4 provides the look and feel of conventional higher-dose images without long processing times.

20		**24 Hours of Additional OnSite Clinical Education**	**3**

Clinical Education Specialist will provide twenty-four (24) hours of tailored CT Oncology OnSite education for up to three (3) dedicated Therapy staff members, selected by customer. CEUs are not available. Please read Guidelines for more information, which will be provided to you during the scheduling process. Note: Philips personnel are not responsible for actual patient contact or operation of equipment during education sessions except to demonstrate proper equipment operation. Education expires one (1) year from the earlier of equipment delivery date or purchase date.

Note: The North America Clinical Education Specialists for Oncology are a team of Certified Medical Dosimetrists and registered Radiation Therapists with expert level knowledge of radiotherapy treatment planning and CT simulation.

Line #	Description	Qty
1	**Number of Concurrent Users NA**	4

The Resource Based License (RBL) is a flexible licensing offering, in which the customer can choose a maximum number of concurrent advanced visualization users based on the specific needs.

Concurrency

The concurrency is based on average usage estimations. Some applications may require additional resources which can limit overall user concurrency. The actual number of concurrent users that may use the system at any given time is limited by the available system resources and may vary. Given heightened resource requirements for Philips IQon CT Scanner Spectral applications (available from version 9), customers may expect Spectral application specific concurrency to be roughly 30% that of conventional applications.

General

IntelliSpace Portal is a thin-client applications server (or workstation deployed for single users) that turns virtually any PC that meets the minimal requirements into an advanced multimodality imaging system workspace to support radiology, cardiology, oncology, neurology, orthopedics, and other specialties' imaging needs, thereby streamlining clinical workflow. IntelliSpace Portal /IX Workstation uses advanced networking capabilities to enable collaboration among clinicians to aid in optimizing clinical decisions. Clinicians can review the results and conduct measurements on images of multiple imaging modalities - including studies acquired from multiple vendors' imaging equipment -- at their convenience in their preferred location. Intellispace Portal's advanced networking and thin-client technologies provides management, and upgrade simplification. In addition, the IntelliSpace Portal now runs in a virtual server environment, allowing you to capitalize on the power of your in-hospital network.

* *Please contact local Philips representative for details on multivendor coverage*

Standard capabilities

The IntelliSpace Portal offers powerful capabilities, both standard and optional. Standard capabilities include:

- Thin-client architecture and multivendor compatibility that makes image data and applications available (for IntelliSpace Portal configurations) anywhere for all CT, MR, Nuclear Medicine, Ultrasound, iXR and DXR images

- Guided Task workflow walks users through each processing stage from start to finish

- Use of bookmarks, interactive snapshots, and other convenient tools to increase efficiencies and minimize training needs

Line #	Part #	Description	Qty

- New color scheme for easier reading
- Multimodality Viewer for display of CT, MR, Nuclear Medicine, Ultrasound, iXR and DXR datasets – standard
- Smart MR Viewing, smart linking, cine movie loop for MR datasets
- "Export to Neuro Surgery" feature enables export of functional results to other DICOM nodes such as surgical planning devices
- Save electronic Key Image Notes (KIN) directly within images to increase informal communication between various users
- Multimodality Fusion: PET-CT, SPECT-CT, NM-CT, CT-CT, MR-MR and CT-MR
- Automatic Registration: PET-CT, SPECT-CT, CT-CT and MR-MR
- PET/CT Alpha blending and 2D/3D SUV calculations
- Display of multi-frame secondary captures
- Slab Review capabilities including regional investigation and curved MPR
- 3D Volume rendering, MIP, VIP, minIP, SurfaceMIP
- Volume Explorer: for instant and interactive seed-growing 3D segmentation
- "Glass View" to display bony structures in relation to 3D volumes
- Comprehensive DICOM Printing ("Filming")
- Dual monitor support -- for color monitors.
- DICOM & IHE compliance
- For Portal configurations:

o Clinical results can be ported directly into PACS or RIS using HL7, Encapsulated-PDF via DICOM, or mXML. Save Key images, notes, and tables directly to your reports; combine findings from multiple clinical applications into a single patient level report to be transferred directly into the PowerScribe 360 Diagnostic report.

o Supports PACS integration: Ability to launch IntelliSpace Portal clinical applications from PACS or RIS at the time when the user is reviewing a study. This improves workflow by automated steps, help reduces mistakes such as typo errors, reduce additional search on ISP client for specific patients and even study/series after launching ISP client from PACS client. Closing study in PACS will also close it on Portal. (safety requirement). Automated exchange of bookmarks and results between ISP and PACS. Note: Certain PACS vendors may charge for the configuration services which are required per site.

Line #	Part #	Description	Qty

IntelliSpace Portal proprietary technology streams display to the client over a LAN, WAN or any broadband Internet connection through the hospital's VPN (virtual private network) without the need to download the CT, MR or Nuclear Medicine data to the client PC. The 'heavy lifting' and complex processing of the data is done on the server.

* *Please contact local Philips representative for details on multivendor coverage*

- Key specifications and requirements (for Portal Configurations):

VM Ware Specifications:
Memory:
• Memory (RAM) minimum: 2GB RAM. Recommended: 4 GB or above.
• Memory (RAM) minimum: 4GB RAM for clients also running PACS
• Memory (RAM) for NM applications and/or when other applications are running in parallel minimum: 4 GB RAM

CPU:
• Processor (CPU minimum): 2 cores @ 1.8 GHz / 4 cores @ 1.6 GHz
• Processor (CPU Minimum for NM applications and/or when other applications are running in parallel): 3 Cores @ 2.8 GHz / 4 Cores @ 2.4 GHz
• Processor (CPU recommended): 3 Cores @ 2.8 GHz / 4 Cores @ 2.4 GHz

Disk Space:
Free Disk Space*: 4 GB or above (on Drive C)
Additional 5 GB of free disk space are required to burn DVD. Additional 15 GB of free disk space are required to install iXR client

Client Monitor:
• Minimal screen resolution: 1024x768. Recommended: 1280x1024 (or above)
• Minimal screen Resolution for NM Apps: 1280x1024 (or above)
• Up to 3 Mega Pixel monitors are supported
• Monitor Dots Per Inch Settings: 96DPI
• 24bpp (or higher) color depth monitors
• No support for monochrome or grayscale-only monitors)
Multi monitor: Require adequate support of client display card and driver
Graphic card (added in release notes)

The client machine should also support a graphic card with the following requirements:
1. Native DirectX 9.c support
2. Native GDI+ Support
3. Native Windows Aero interface support
4. 128MB RAM (for the graphic card)

Network
Minimum Network adapter speed: 100 Mbps or above
Recommended Network adapter speed: 1 Gbps or above

LAN (Hospital) Network:
Network bandwidth/latency (LAN): 100 Mbit/s or above- (1 Gigabit/s or above recommended), 0-5ms Latency recommended.

Home connection
• Network bandwidth/latency (for home connection): 5 Mbit/s or above download speed, 512Kbit/s or above upload speed with latency <20ms
• Network bandwidth/latency for NM Apps (for home connection): 10 Mbit/s or above download speed, 1Mbit/s upload speed with latency <10ms
• Network bandwidth/latency for NM 3rd Party Apps (for home connection, AutoQuant,

Line #	Part #	Description	Qty

Corridor4DM, ECTb, NeuroQ) :
• 100Mbit/s download/ 10Mbit/s upload with <10ms latency

Software Pre-Requisites:Supported OS:
• Windows 7 (32 & 64 bit)
• Windows 8 / 8.1
• Windows 10
• Windows 7, 8, 8.1 and Windows 10 require an administrative account for initial installation

Pre-Installed software:
• Net Framework 4.5.2 Client + Extended or above
• Additional Software Recommended (for optional features):
• Adobe Acrobat Reader [for Report & Help]
• Adobe Flash Player [for On-line Web Trainings] Windows Media
• Windows Media Player 9.0 or above [for saving Movies] IMAPIv2 [for Burning CD/DVD]
• DirectX 9.c (or better) – Optional component required for better application experience

* For the NA Market only

2 **Rack Configuration** **1**

3 **IntelliSpace Portal** **1**

This is a hardware option in the new Resource based license (RBL) model.

IntelliSpace Portal, ideal for hospital-sized performance of up to 10 concurrent users, is designed to create smart clinical integration that often leads to enhanced patient outcomes. It is a thin-client applications server that turns virtually any PC that meets the minimal requirements into an advanced multimodality imaging system workspace that can support radiology, cardiology, oncology, neurology, orthopedics, and other specialties' imaging needs, thereby streamlining imaging workflow. IntelliSpace Portal uses advanced networking capabilities to enable collaboration among clinicians that may ultimately lead to faster, more accurate and informed patient care. Clinicians can review the results of multiple imaging modalities - including studies acquired from multiple vendors' imaging equipment -- at their convenience in their preferred location. Until now, the most powerful visualization workstations were housed only in the radiology department, requiring a referring physician to make a special trip to view advanced images so crucial to accurate patient diagnoses. With Intellispace Portal's advanced networking and thin-client technologies the access to powerful visualization and image processing is significantly enhanced

The IntelliSpace Portal offers powerful capabilities, both standard and optional. Standard capabilities include:

• Thin-client architecture and multivendor compatibility that makes image data and applications available anywhere for all CT, MR, Nuclear Medicine images
• Guided Task workflow walks users through each processing stage from start to finish
• Use of bookmarks, interactive snapshots and other convenient tools to increase efficiencies and minimize training needs
• Unlimited number of client installs: number of concurrent users only subject to available server resources
• Multimodality Viewer for display of CT, MR and Nuclear Medicine datasets - standard
• Smart MR Viewing, smart linking, cine movie loop for MR datasets
• Multimodality Fusion: PET-CT, SPECT-CT, NM-CT, CT-CT, MR-MR and CT-MR

Line #	Part #	Description	Qty

• Automatic Registration: PET-CT, SPECT-CT, CT-CT and MR-MR
• PET/CT Alpha blending and 2D/3D SUV calculations
• Display of multi-frame secondary captures
• 3D Volume rendering, MIP, VIP, minIP, SurfaceMIP
• Slab Review capabilities including regional investigation and curved MPR
• Volume Explorer: for instant and interactive seed-growing 3D segmentation
• “Glass View” to display bony structures in relation to 3D volumes
• Comprehensive DICOM Printing (“Filming”)
• Dual monitor support -- for color monitors.
• DICOM & IHE compliance
• Supports PACS integration

IntelliSpace Portal proprietary technology streams display to the client over a LAN, WAN or any broadband Internet connection through the hospital’s VPN (virtual private network) without the need to download the CT, MR or Nuclear Medicine data to the client PC.
The ‘heavy lifting’ and complex processing of the data is done on the server.

Key specifications and requirements:
HP Rack - ISP:
Chassis DL360 Gen9 8-SFF Server
Processor Dual Intel Xeon® E5-2643v4, 3.4GHz, 6C
Memory 32GB 2400MHz (4x8GB)
Hard drive 3x 1.2TB SAS 10K 2.5in RAID5
Operation System Windows Server® 2008 R2; from version 9.0: Microsoft Windows Server® 2012 R2

HP Tower - ISP:
Chassis ML350 Gen9 8-SFF Server
Processor Dual Intel Xeon® E5-2643v4, 3.4GHz, 6C
Memory 32GB 2400MHz (4x8GB)
Hard drive 3x 1.2TB SAS 10K 2.5in RAID5
Operation System Windows Server® 2008 R2; from version 9.0: Microsoft Windows Server® 2012 R2

The Extended Storage option (applicable for Rack and Tower) contains 3x 1.2TB SAS 10K 2.5in that are in addition to the 3 installed HD’s, so the total HD’s will be 6x 1.2TB in RAID5

•Philips IntelliSpace Portal server software, including:
•Proprietary Portal server application
•User management application for managing user database
•McAfee antivirus software provided by Philips

Networking:
•TCP/IP protocol only Static IP address Security:
•HIPAA compliance
•DIACAP compliance
•Portal Server access for authorized user only
•Access to the computer itself either using its console or by remote desktop
•Encrypted users/groups database file
•User management application available only to defined Portal administrators

Line #	Part #	Description	Qty

•Encrypted transfer over the network of user name and password information
•Audit trail
•Windows Firewall
•Network requirements:
•Gigabit connections recommended
•Domain based network environment recommended

Client Specifications:

• Memory (RAM) minimum: 2GB RAM. Recommended: 4 GB or above (required for Dual Energy and Spectral applications).
• Memory (RAM) minimum: 4GB RAM for clients also running PACS

• Memory (RAM) for NM applications and/or when other applications are running in parallel minimum: 4 GB RAM

• Processor (CPU minimum): 2 cores @ 1.8 GHz / 4 cores @ 1.6 GHz

• Processor (CPU Minimum for NM applications and/or when other applications are running in parallel): 3 Cores @ 2.8 GHz / 4 Cores @ 2.4 GHz

• Processor (CPU recommended): 3 Cores @ 2.8 GHz / 4 Cores @ 2.4 GHz

* Additional 5 GB of free disk space are required to burn DVD.

* An additional 15 GB of free disk space are required to install iXR client

Monitor:
• Minimal screen resolution: 1024x768. Recommended: 1280x1024 (or above)
• Minimal screen Resolution for NM Apps: 1280x1024 (or above)
• Up to 3 MegaPixel monitors are supported
• 96DPI
• 24bpp (or higher) color depth monitors
• No support for monochrome or grayscale-only monitors)
Multi monitor: Require adequate support of client display card and driver
Minimum Network adapter speed: 100 Mbit/s or above
LAN Network
Network bandwidth/latency (LAN): 100 Mbit/s or above- (1 Gigabit/s or above recommended)
Home connection
• Network bandwidth/latency (for home connection): 5 Mbit/s or above download speed, 512Kbit/s or above upload speed with latency <20ms
• Network bandwidth/latency for NM Apps (for home connection): 10 Mbit/s or above download speed, 1Mbit/s upload speed with latency <10ms
• Network bandwidth/latency for NM 3rd Party Apps (for home connection, AutoQuant, Corridor4DM, ECTb, NeuroQ) : 100Mbit/s download/ 10Mbit/s upload with <10ms latency

Software Pre-Requisites:
• Supported OS:
• Windows 7 (32 & 64 bit)

• Windows 8, 8.1 (32bit, 64bit)

Line #	Part #	Description	Qty

• Windows 10 (64bit)

• Windows 7/8 and Windows 10 require an administrative account for initial installation
• Net Framework 4.5.2 and/or above

Additional Software Recommended (for optional features): Adobe Acrobat Reader [for Report & Help]
Adobe Flash Player [for On-line Web Trainings] Windows Media Player 9.0 or above [for saving Movies] IMAPIv2 [for Burning CD/DVD]

A Supported Web Browser is required. The following is a list of supported browser versions:

• Google Chrome (Latest Released Version)

• Mozilla Firefox (Latest Released Version)

• Microsoft Internet Explorer (Version 11)

“The hardware specification in the quote is just for reference. The hardware that will eventually be delivered to customer under this quote may either meets or exceeds the mentioned specs under your agreement.”

4 **Enhanced MMTT** **1**

Monitor disease state to assess treatment response using CT, MR, PET/CT and SPECT/CT data

Segment lesions and quantify anatomic and metabolic state over time. Enhanced semi-automatic volumetric segmentation optimized per modality
Automatic calculation of WHO, RECIST 1.0, RECIST 1.1, CHOI, PERCIST, and mRECIST criteria presented in easily exportable tabular and graphical layouts.
From version 9.0: Application provides PET metabolic volume segmentation option based on percentage. Application includes Glucose SUV – an option to calculate the lesion uptake normalized by the patient glucose level.

Advanced treatment response criteria support is part of the preset and reflected in an enhanced workflow which allows for easy segmentation, editing, and review in different layouts. Quantitative overview of volumetric and functional features is organized for greatest ease of use.

Prerequisite: IntelliSpace Portal 7 or higher

5 **ISP Initial Handover End User** **1**

A Philips Clinical Workflow Adoption Consultant will provide a twenty-four (24) hour introduction to advanced visualization techniques for Technologists and /or Radiologists over three consecutive business days. The education will cover the fundamentals of image manipulation and processing associated with the specific software (application packages) purchased. Philips requires no more than 5 attendees per session to maximize the educational value.

Attendee(s) are responsible for adhering to the agreed upon clinical education statement of work. ASRT CEU credits may be available for each participant who meets ASRTcriteria. Education expires one (1) year from equipment installation date (or purchase date if sold separately).

Line #	Part #	Description	Qty
6		**ISP Stand-alone Implementation Services**	1

Overview
This service provides units of implementation services and/or time based consulting.

Engagement Deliverables
• This covers the applicable Philips activities to perform the implementation of the IntelliSpace Portal as configured in this order.
Engagement Completion Criteria
• This action is completed upon the successful technical installation of the IntelliSpace portal as signified by the customer signing the MDIR or FCU document. This is exclusive of the activities required by the customer (stated below) and payment is required upon completion of the Philips implementation activity.

Customer Work Contributions
- The customer will complete all deliverables as agreed to in the Statement of Work.

Limitations
• Services shall be delivered Monday thru Friday on Philips business days between the hours of 8am thru 5pm local time.
• Does not include additions, deletions or modifications to current interfaces.

Line #	Description	Qty
1	**Rack Configuration**	1
2	**Emory Cardiac ToolBox v4.x**	1

Emory Cardiac Toolbox (NM) version 4.x provides advanced tools for comprehensive cardiac PET, SPECT and Gated SPECT analysis that include:

• Perfusion and viability analysis
• Normal limits for Rubidium, Ammonia, and FDG/perfusion match/mismatch
• Display of 3D images with coronary overlays, gated 3D cine
• Phase Analysis for wall motion and thickening evaluation
• SyncTool for phase analysis of Gated MPI studies to measure left ventricular Dyssynchrony in heart failure patients
• Astonish and Astonish AC normal limits for cardiac SPECT
• Enhanced user interface
• SmartReport (optional)

The feature provides one floating license, allowing one concurrent user to access this feature on any IntelliSpace portal client.

Prerequisites: IntelliSpace Portal 7 or 8 or 9.

3	**NM Review**	1

NM Review application that provides a comprehensive review and analysis environment for Planar, SPECT, SPECT/CT, and PET/CT studies

- Image display modes for PET, PET/CT, PET/MR, CT, MR, Planar, SPECT and SPECT/CT data in all orthogonal planes and registered image displays
- Viewer for oblique slices (Slab View) and ability to change slice thickness on the fly
- Fused 3D volume rendering
- Advanced visualization tools supporting 4D TOF data
- Automated and Interactive multimodality 3D co-registration
- Quantitative 2D and 3D measurement tools (SUV)
- 3D ROI generation for tumor segmentation
- Layout editor for user customizable review layouts
- Image and curve manipulation tools
- Saving ROIs as DICOM RT for export to radiation treatment planning systems

NM Review application provides multimodality co-registration tools for automated 3D registration of multimodality studies (PET, SPECT, CT and MR). The following automatic co-registration methods are supported: Mutual information, cross correlation, and local correlation. It also

Line #	Part #	Description	Qty

supports an interactive registration method based on fiducial points selected by the user

Prerequisite: Intellispace Portal V5 or higher

4 **NM Processing App Suite** **1**

Provides a comprehensive analysis, and processing environment for Planar and SPECT studies on the IntelliSpace Portal.

NM Processing App Suite includes Renal, Lung, Bone /Whole Body, Cardiac (First Pass, Shunt and MUGA), Gastric, Liver, Gallbladder, Esophageal, and Thyroid/Parathyroid, applications. These applications are fully integrated with Viewing, Image and Curve Manipulation tools. The users can invoke these tools "when needed where needed". All applications support "state-of-the-art" protocol and preference management that allows the users to configure their workflow and usability "on the fly".

NM Processing App Suite includes also two licenses of JETPack, a complementary suite of organ-specific applications for general nuclear medicine developed within IDL(TM) programming environment.

AutoSPECT Pro provides for SPECT and SPECT/CT reconstruction workflows with a goal of reducing the number of user interactions through protocols. It integrates into one user interface, the following:

- Fast and fully automated reconstruction and reorientation software with motion correction
- SPECT/CT registration and fusion display with alpha-blending and triangulation to facilitate CT AC
- Image review with fusion display

AutoSPECT supports CT-based attenuation and scatter correction for the following radionuclides: Tc-99m, Tl-201, In-111, Ga-67, I-123, Lu-177 and I-131.

The QA Suite provides a comprehensive set of tools to perform daily and periodic QA.

Notes:

1) Two JETPack licenses are included with the NM Processing App Suite option on IntelliSpace Portal DX, HX, and EX. Additional JETPack licenses are available via the Add'l JETPack license option

2) For cardiac quantification/review, optional AutoQUANT, ECTb or Corridor4DM software is recommended.

Prerequisite: Intellispace Portal V5 or higher and NM Review