INNOVATION BY DESIGN

For over 130 years, Toshiba has led the world in developing technology to improve the quality of life. This *Made for Life*™ commitment is reflected in our family of leading-edge imaging systems for MRI, CT, ultrasound, cath labs, X-ray and nuclear medicine. From creating our first X-ray tube in 1915 to introducing the first Dynamic Volume CT Scanner in 2007, Toshiba continues to build upon our legacy with technological innovation that improves patient care while providing lasting quality for a lifetime of value.

TOSHIBA
Leading Innovation ⟫⟫⟫

Toshiba — A History of Leadership

- *1875* • **Founding of Toshiba**
- *1915* • **First X-ray Tube**
- *1973* • **First Real-time Ultrasound Scanner**
- *1989* • **First Helical CT Scanner**
- *1990* • **First Tissue Doppler Imaging System**
- *1993* • **First One-million-pixel CCD**
- *1997* • **First Open, Superconducting Magnet**
- *2000* • **First All-digital Multipurpose X-ray System**
- *2003* • **First 64-slice CT Scanner**
- *2005* • **First Compact Dual Plane Cath Lab with Flat Panel Detectors**
- *2007* • **First Dynamic Volume CT Scanner**

INFX-8000V
–Type S–
— *Multi access vascular biplane system* —
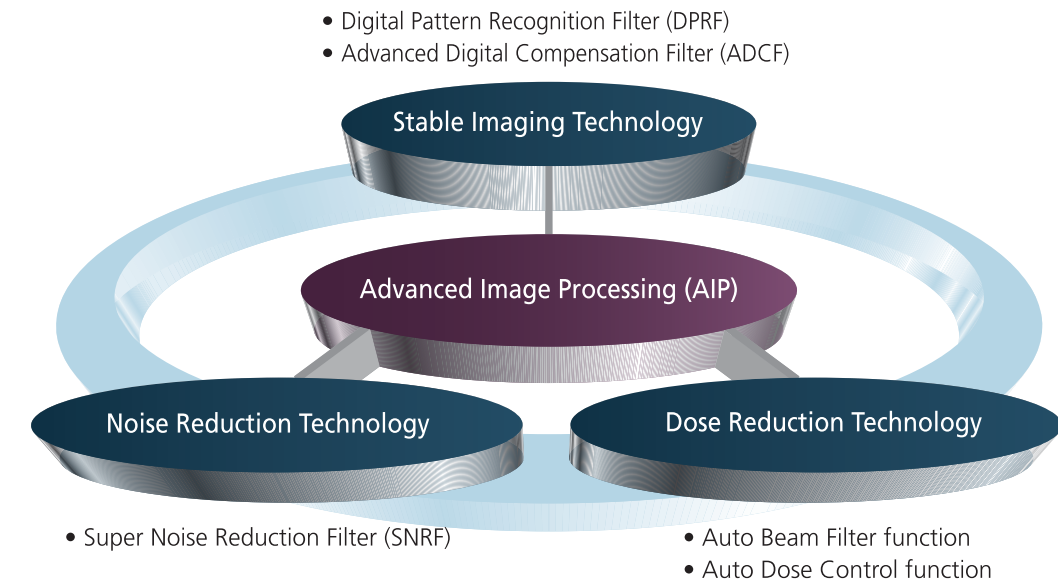30 cm × 40 cm   30 cm × 30 cm Flat Panel Detector

INFX-8000V

Advanced technologies deliver
optimized biplane imaging

Designed in concert with leading pediatric physicians, the INFX-8000V provides advanced, versatile patient access to meet the demands of today's multi-discipline imaging environments. The system's revolutionary multi-tasking computer and intuitive user interface deliver optimum image quality, time-saving ease of use and improved workflow. Ideal for diagnostic, interventional and hybrid procedures, the INFX-8000V is a completely new approach to biplane imaging designed to take advantage of its revolutionary multi-axis C-arm.

Advanced Image Processing (AIP) provides superb image quality for visualization of vessels and device.

• Digital Pattern Recognition Filter (DPRF)
• Advanced Digital Compensation Filter (ADCF)

Stable Imaging Technology

Advanced Image Processing (AIP)

Noise Reduction Technology

Dose Reduction Technology

• Super Noise Reduction Filter (SNRF)

• Auto Beam Filter function
• Auto Dose Control function

Major improvements in image quality, patient access and ease of use

➤ Comprehensive biplane imaging without compromising patient access

➤ High-resolution, flat panel images with uniform brightness and no distortion

➤ Quiet instant-on, liquid-metal bearing X-ray tube for efficient exams

➤ Unique lateral arm adjustment to quickly optimize imaging angles

➤ Valuable dose-saving features:
 - Various pulse rate controlled with grid
 - X-ray beam filtration
 - Variable frame rates in fluoroscopy and digital angiography
 - Last image hold with virtual collimation

➤ Major DICOM service classes included, which provide open access to patient information

➤ New generation filter made it possible the reduction of noise with high spatial resolution and less lag. The new filter enhances high-definition images of small devides and structures (Super Noise Reduction Filter: SNRF).

Unparalleled patient access:
meeting the needs of all physicians

The INFX-8000V is designed to provide superior access to the patient — an important point of distinction in the imaging landscape that now often requires the attention of a wide range of specialists. In hybrid procedures that may require a full complement of specialists including surgeons, neuroradiologists and anesthesiologists, the INFX-8000V is at its best.
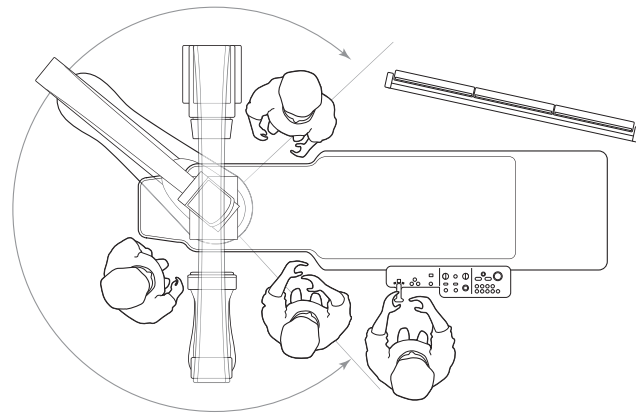
In this configuration, the head end of the table has 145 degrees of space allowing easy access for your anesthesiologist.


Efficient tableside control

The tableside console layout allows clinicians to more effectively concentrate on the patient and the image data providing a more patient focused examination.

➤ Workflow is enhanced by tableside access to key functions through a specially designed graphical user interface

➤ During image review, a single keystroke enables system setup from any selected image

➤ Automatic archiving provides immediate recall of images at tableside without interruption

Compact tableside control provides ergonomic and tactile control of all exam functions for rapid component positioning, and control of digital processing functions.
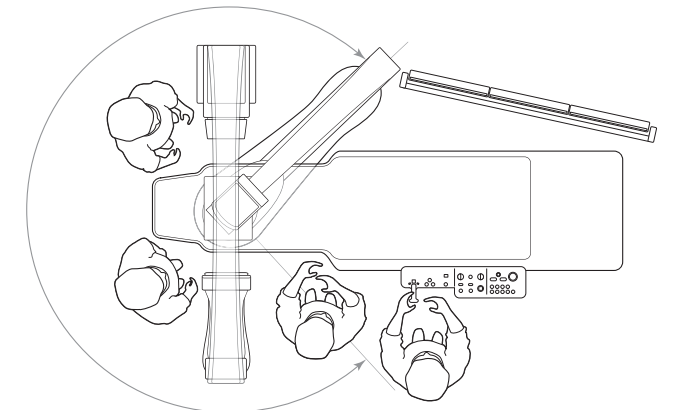

Multi-Axis design provides a new level of access to the patient. The head end of the table has a full 180 degrees of space allowing the necessary physicians to conveniently access the patient and still provide biplane viewing.

Distortion-free
flat panel biplane imaging

Toshiba's high-definition flat panel detectors deliver superior contrast and dynamic resolution. Whether processing biplane fluoroscopy or biplane digital angiography, the images demonstrate a fine balance of low noise and easy visualization of contrast flow, with a sharp display of small details of interventional devices.

Fast, easy flat panel positioning

The 30 cm x 40 cm flat panel detector can be positioned in portrait or landscape orientations. Manually or automatically, these positions can be achieved with the simple touch of a button.
The FPDs and the beam limiting devices mounted to the frontal and lateral planes are automatically rotated, enabling the images to be always displayed with the head end at the top of the monitor.

Quick and easy flat panel detector positioning

Vertical movement of the flat panel detector of the Ω-arm can be linked with vertical movement of the X-ray tube, enabling quick and easy positioning.

▶ Real-time processing capabilities produce high-resolution flat panel images with uniform brightness and no distortion in both single plane and biplane mode

▶ Biplane acquisition at 15 pps with 1024 x 1024 resolution stops rapid motion and allows simultaneous display of both AP and lateral images in real time

▶ Advanced processing capability delivers high-quality biplane imaging from the smallest pediatric patients to the heaviest adults
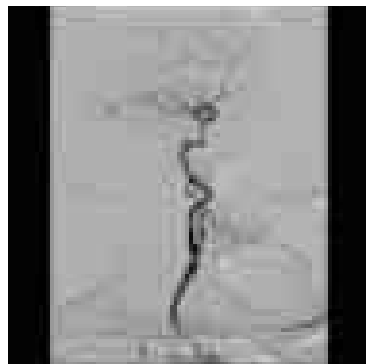
▲ Large FPD can be utilized for a frontal or lateral projection, in this case providing coverage of cervical carotid and cerebral carotid circulation.
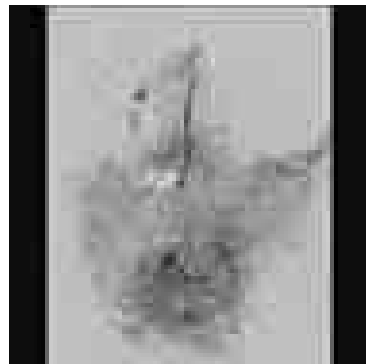
▲ Optimum abdominal coverage can be achieved with the large FPD, as evidence by this SMA injection for GI bleeding.

▲ 30 cm x 30 cm FPD can be utilized providing coverage of cervical carotid and cerebral carotid circulation.
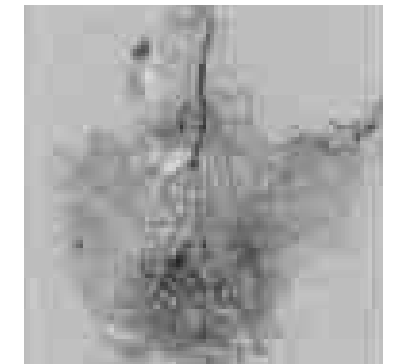
▲ Optimum abdominal coverage can be achieved with the 30 cm x 30 cm FPD, as evidence by this SMA injection for GI bleeding.

Advancing biplane imaging
from head-to-toe

With its comprehensive positioning and image review capabilities, the INFX-8000V accommodates a wide range of procedures. Advanced conventional and 3D imaging technologies provide unprecedented imaging with unique tools to enhance both diagnostic and interventional procedures. These powerful imaging and processing tools enhance clinicians overall treatment planning capabilities.

## Advanced image processing technology

The use of Toshiba's unique Advanced Digital Compensation Filter (ADCF) and Digital Pattern Recognition Filter (DPRF) in combination produces images of unparalleled clarity. ADCF is a background processing technique that is useful for reducing halation in the lung field and for correcting dark areas such as the mediastinum. DPRF is useful for depicting devices and blood vessels. It enhances the contrast of devices and blood vessels and at the same time recognizes all other areas as noise, reducing the amplitude of the signals from these areas.

SNRF significantly reduces image noise in 14-bit gray scale images without requiring the X-ray dose to be increased. It achieves this by recognizing and reducing the noise components in each individual image frame.

Signal enhancement

Signal suppression
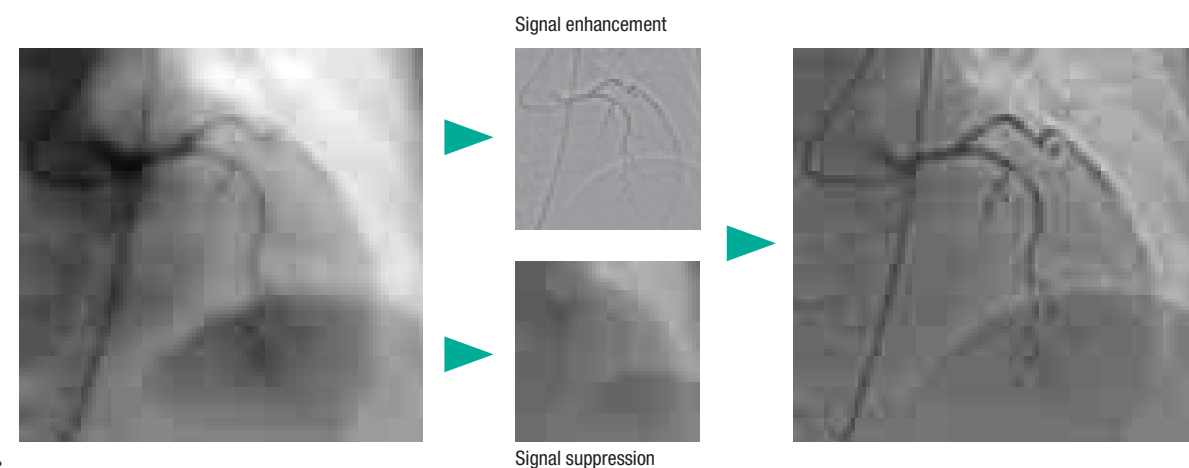
Peripheral DSA

The 30 cm x 40 cm flat panel detector is designed for high-resolution fluoroscopic imaging. With four selectable fields of view and imaging up to 30 fps, operators can optimize imaging conditions at the tableside to achieve ideal fluroscopic conditions.
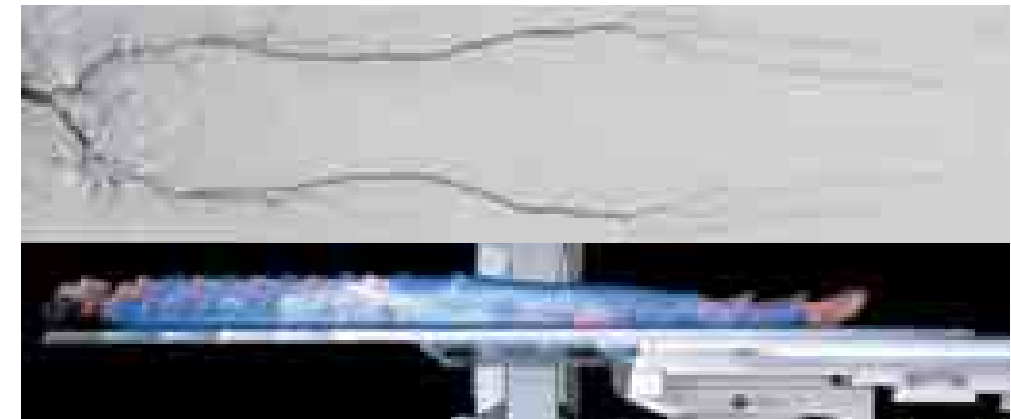
3D-Angio

Easy setup and execution of mask and arterial phase are used to create bone or device fusion.
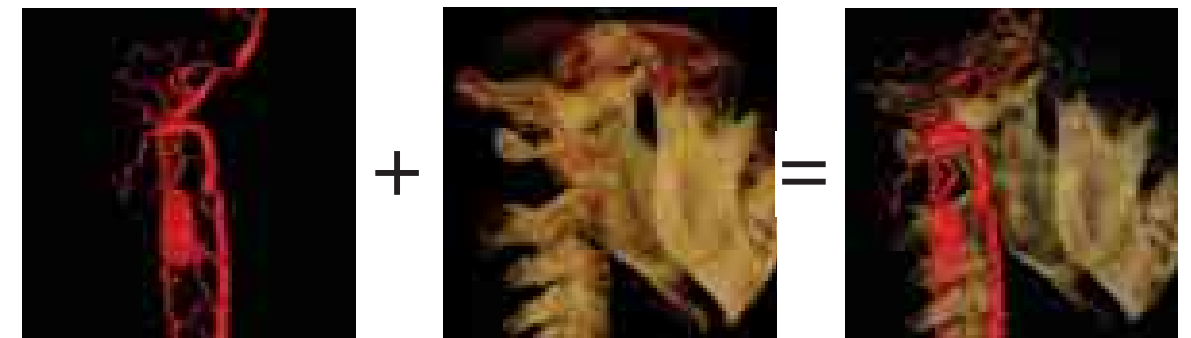

Guide View provides a clinical "roadmap"

Toshiba's "Guide View" provides a superimposed roadmap over live fluoroscopy images, facilitating accurate device placement within a targeted vascular anatomy.
Two types of display methods are provided for roadmapping: fluoroscopic subtraction display and landmark display. Fluoroscopy peak image or DSA subtraction image can be used as a mask image for fluoroscopy roadmapping. When the DSA subtraction image is used, the density for the blood vessels can be changed as desired.

➤ Unique technology enhances visualization (in black or white) of the catheters or guide wires
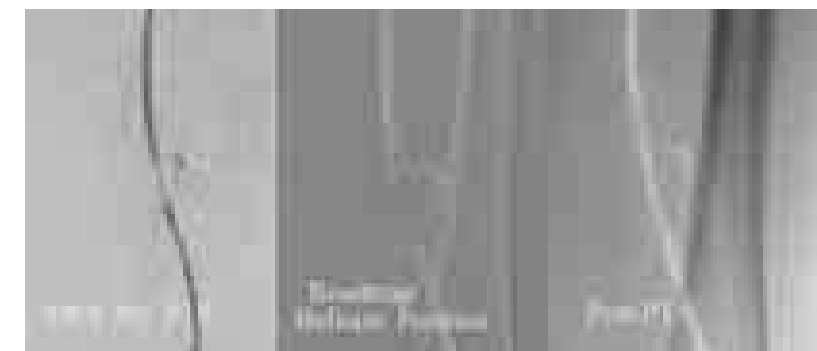
Dose-reduction technologies
for patient and operator

Variable dose mode

With the touch of a tableside button, the operator can choose from four pre-programmed fluoroscopy modes. Different combinations of pulse rates, dose level, and image processing parameters optimize various study protocols.

Virtual collimation

After fluoroscopy, virtual collimation uses software to simulate collimator and beam filter positions. This lets operators adjust collimation without additional fluoroscopy, further reducing radiation dose.

▲ Clinicians enjoy the added advantage of increased productivity and patient care with complete tableside control.

Electronic zoom

Electronic zoom digitally enlarges images in real time during fluoroscopy, without increasing dose. This eliminates the need to use smaller fields of view on the detector for magnification purposes, which would increase the dose required.

Fluoroscopic acquisition

Operators can capture still and dynamic images for future reference during fluoroscopy. These archived images represent an alternative to fluorography and a major reduction in dose exposure.
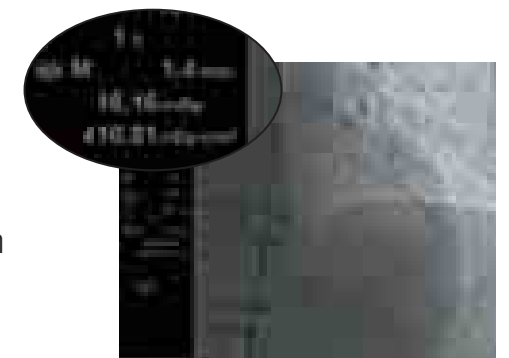
F-REC		Fluoroscopic images acquired after pressing the fluoroscopy start button are recorded. Images can be recorded for up to 90 seconds or 1020 frames. (Dynamic image recording)
F-STORE		Fluoroscopic images acquired in the last 10 seconds are recorded. If required, press the F-STORE button after fluoroscopy is completed. (Dynamic image recording)
F-REC (S)		The LIH (last image hold) image acquired in fluoroscopy is recorded. (Still image recording)

Dose display

Radiation dose can be monitored in real time. The operator can observe dose levels on a digital display in the examination room.

X-ray beam filter

Toshiba's beam filtration can dramatically reduce patient dose and scatter radiation. Beam filtration can be automatically switched, depending on the imaging conditions.

Advanced system design
drives higher productivity

INFX-8000V is equipped with Sequential Navigation for physicians to quickly "navigate" through an exam (e.g., carotid, renal or runoff). INFX-8000V executes the preferred angles, projections, and acquisition parameters, all from memory. One touch of a button enables navigation through the routine settings for each exam type. Operators have the freedom to change any parameter throughout the procedure without disrupting Sequential Navigation.

▶ INFX-8000V can store virtually any number of customized exam types for any number of operators. This unique Toshiba feature dramatically boosts productivity.

▶ Customizable exam parameters include:
- C/Ω-arm position and angulation
- Table height
- Source-to-image distance
- Compensation filter settings
- Acquisition rate
- Image size
- Field of view
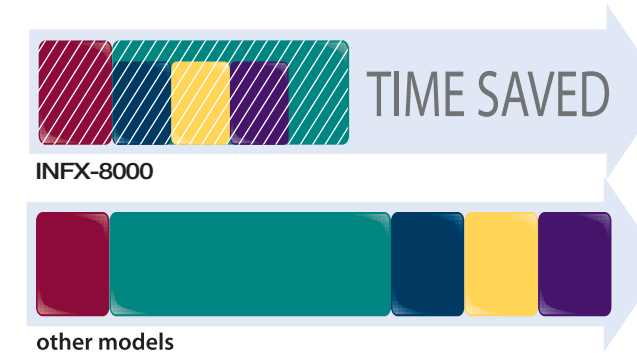- Generator settings
- Digital processing

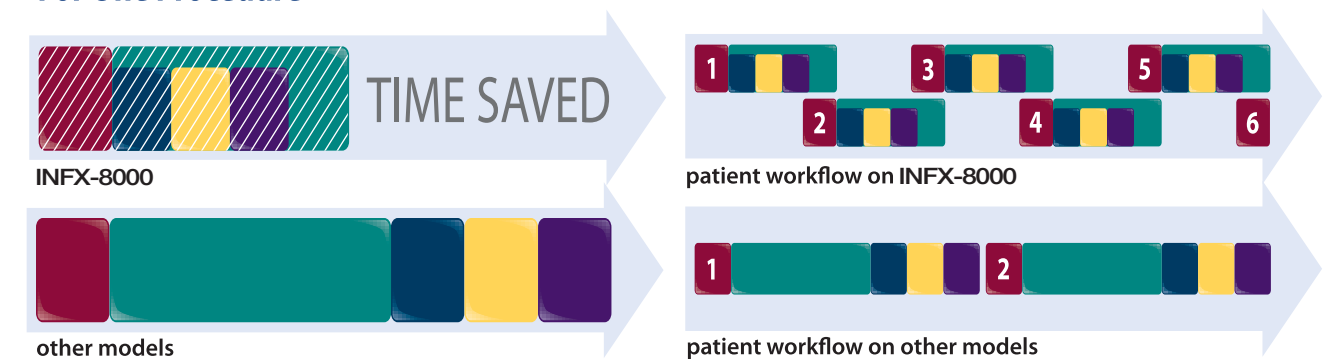## More efficient exams with parallel processing and true multitasking

Simultaneously processing and transferring image data during acquisition yields quick, efficient exams. For example, during fluoroscopy and fluorography, operators can prepare for the next scheduled patient, process and save images from a previous (or current) study, and transfer or archive images to an associated network.

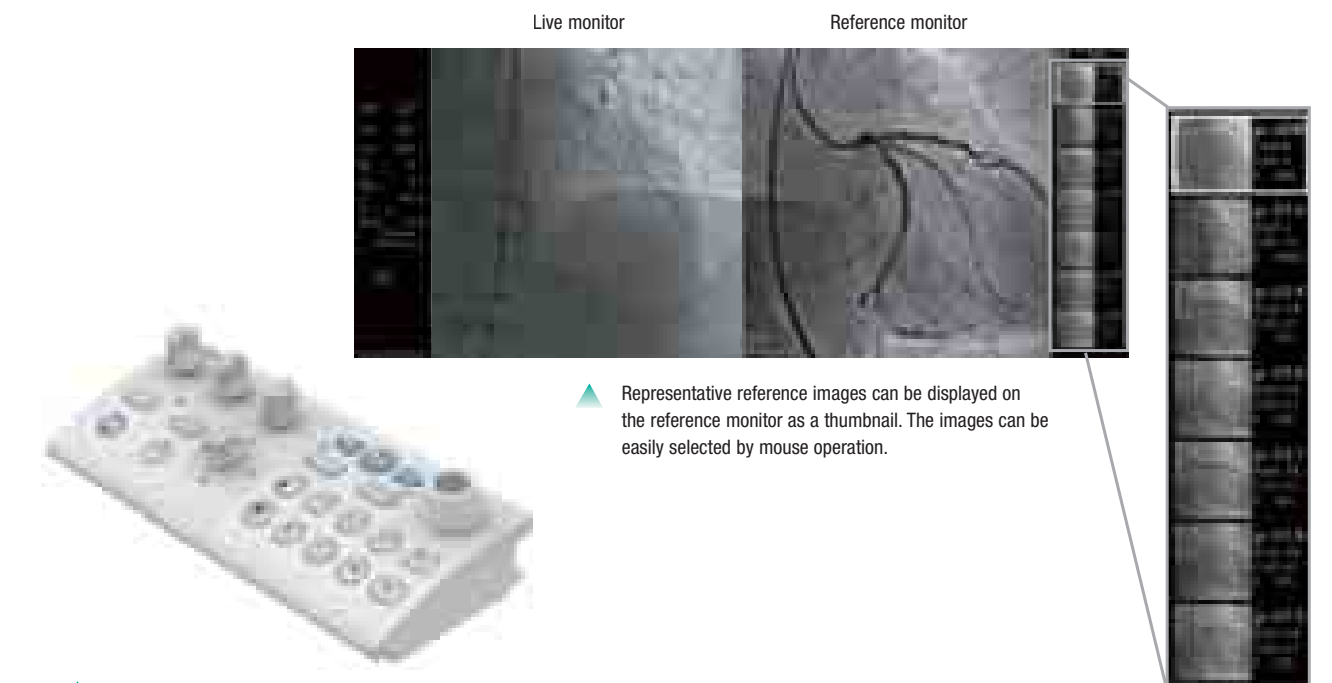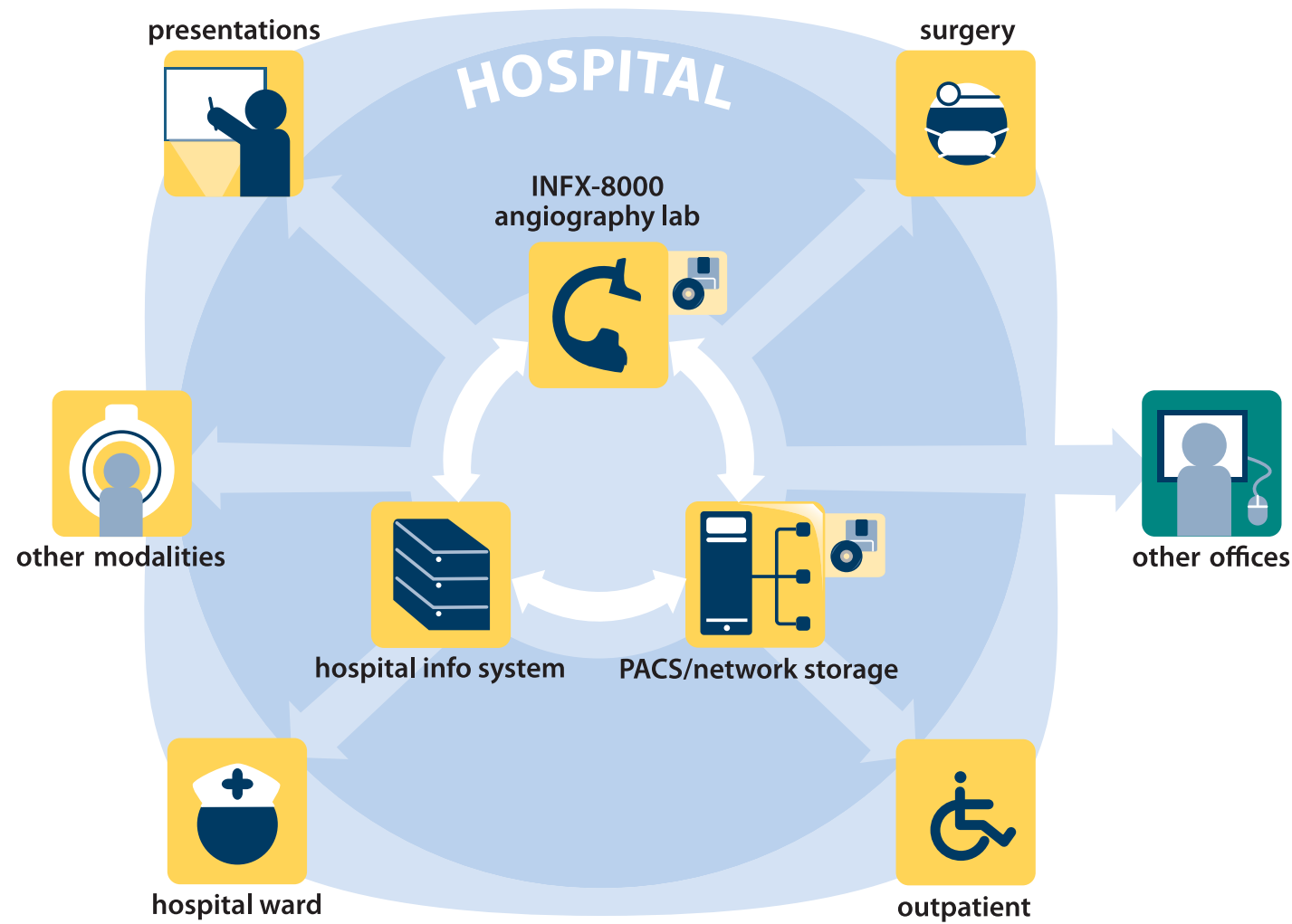## The advantages of parallel processing

For One Procedure

TIME SAVED

INFX-8000

other models

For One Lab

patient workflow on INFX-8000

patient workflow on other models

time lapse

- •parallel & background processing
- •patient registration
- •retrieve archived images
- •fluoroscopy & radiography
- •playback & display
- •filming & analysis
- •image storage
- •HIS/RIS feedback

Live monitor   Reference monitor

▲ Representative reference images can be displayed on the reference monitor as a thumbnail. The images can be easily selected by mouse operation.

▲ Main console take over the same design with the table side console for user friendliness.

Access to patient information
with seamless network integration

The INFX-8000V comes standard with the six major DICOM Service Classes enabling efficient network integration. These DICOM features allow open access to patient information while reducing examination time and enhancing overall department workflow.

HOSPITAL

presentations

surgery

INFX-8000
angiography lab

other modalities

other offices

hospital info system

PACS/network storage

hospital ward

outpatient

INFX-8000: Dynamic viewing and flexible network integration permits rapid export and retrieval of images. Open communications with HIS/RIS provides rapid transfer of patient information.
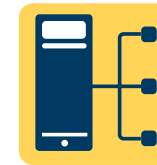
PACS/network storage: Provides online dynamic review of patient images. Storage and transfer of multi-modality images are handled at high speed.

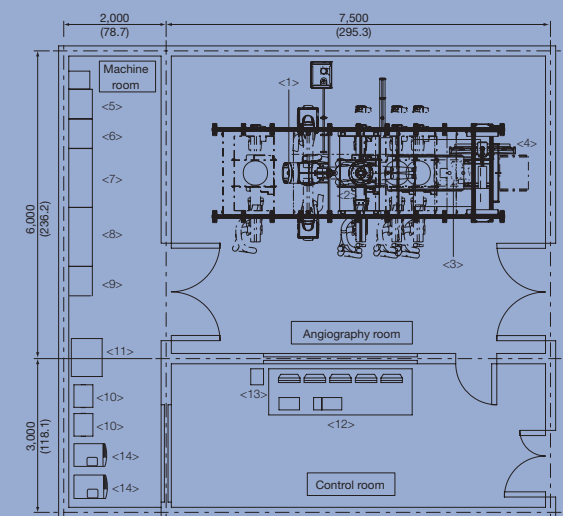**Presentations:** Clinical data can be exported as PC format files for use in presentations.
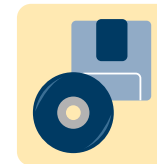
DICOM CD-R/DVD-RAM: Serve as long-term and portable storage media for valuable image data.

Compact design for easy siting

A typical system layout

<1>   Floor-mounted C-arm support (CAS-880A)
<2>   Ceiling-suspended Ω-arm support (CAS-820B)
<3>   Catheterization table (CAT-850B)
<4>   Ceiling-suspended monitor
<5>   CAS-820B control cabinet
<6>   CAS-880A control cabinet
<7>   XTBP-8100G power cabinet

<8>   XTP-8100G power cabinet
<9>   XTP-8100G system power cabinet
<10> HEX-125 X-ray tube cooling unit
<11> Digital radiography main unit (DFP-8000A/W2)
<12> System console
<13> System cabinet for control room
<14> FPD coolant circulator

Machine room
Angiography room
Control room