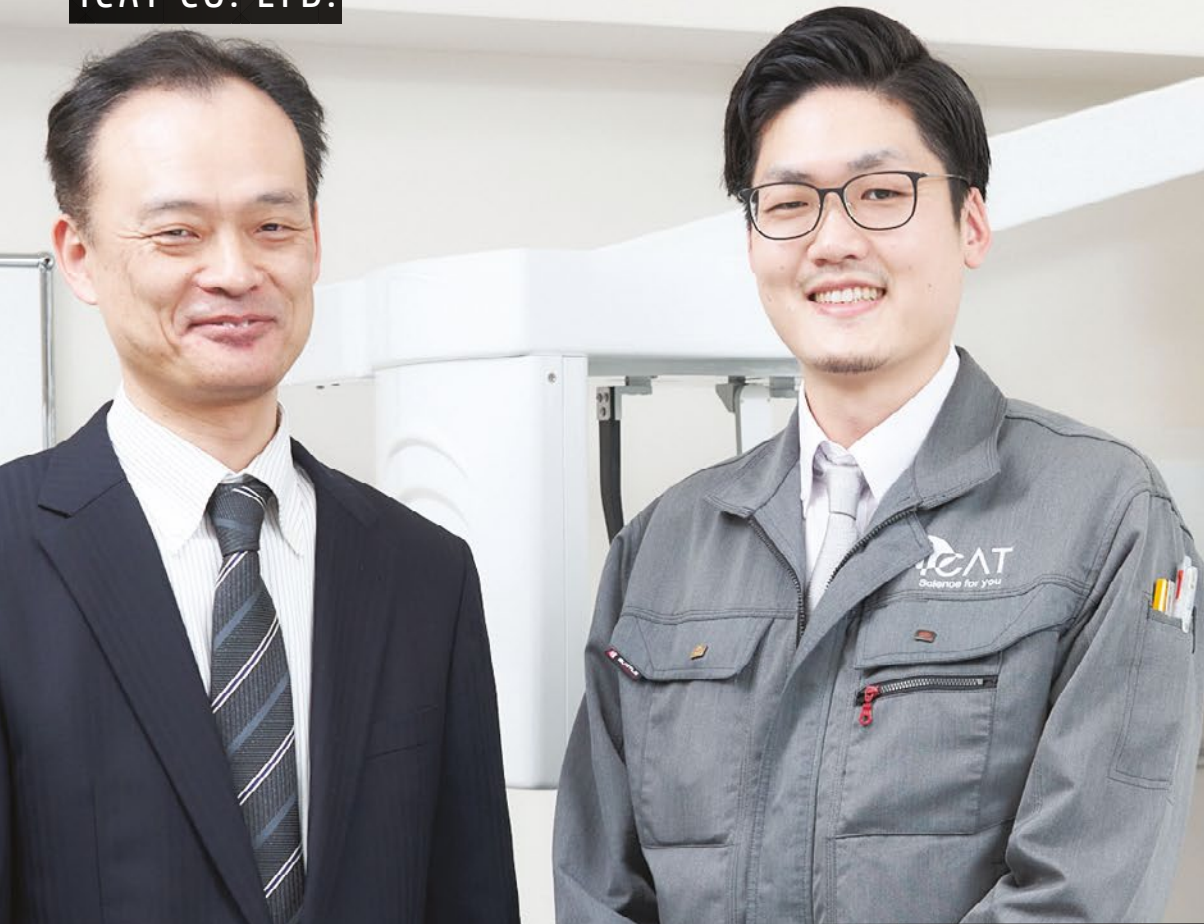
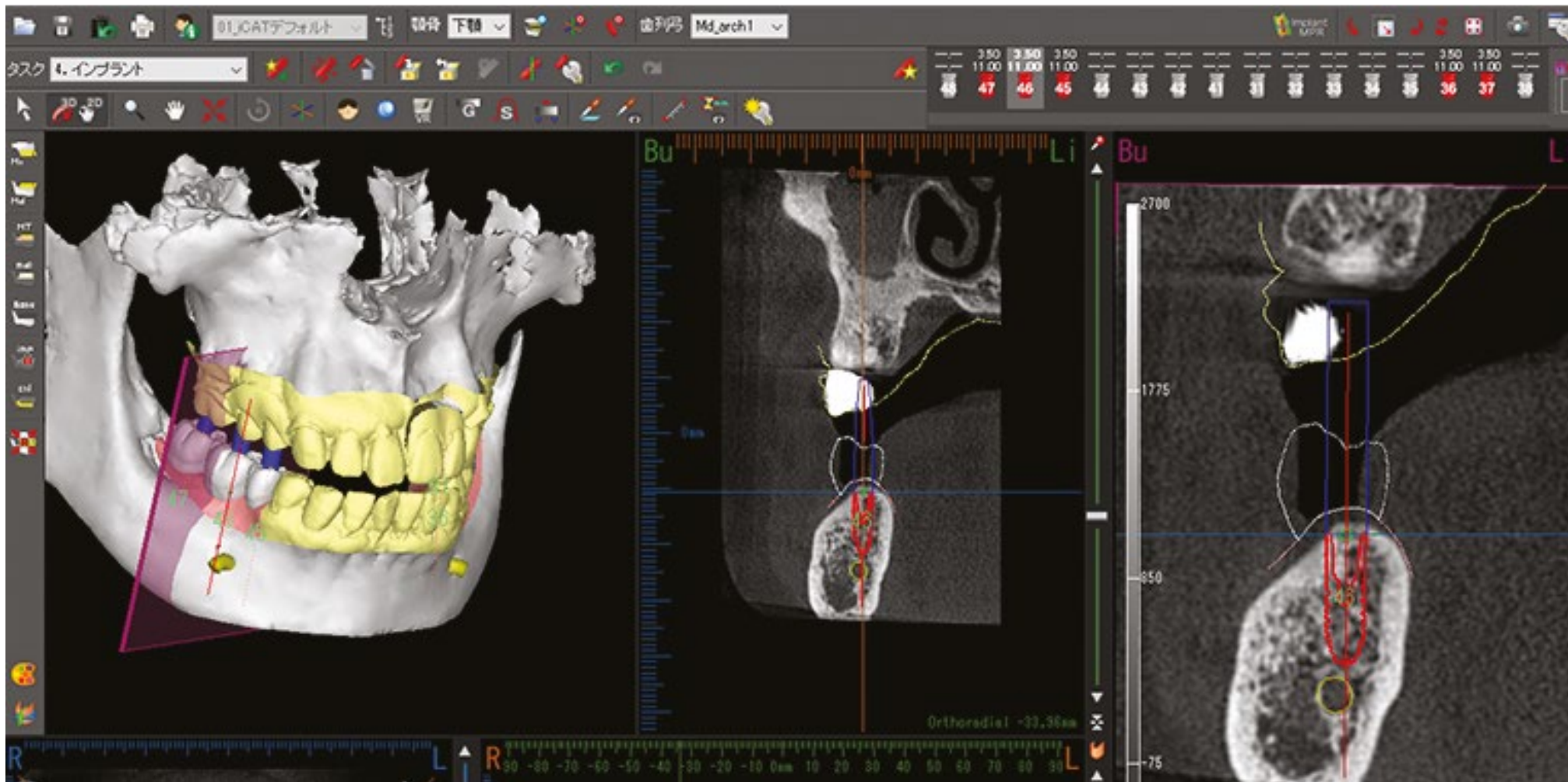


CASE STUDY
ICAT CO. LTD.



BY REDUCING THE 3D PROCESSING
SPEED OF DENTAL CT DEVICE REVOLUX®
TO ONE-THIRD, Z BY HP WORKSTATIONS
SUCCESSFULLY DELIVER SMILES TO
DENTISTS AND PATIENTS



Dental implants, especially those that insert artificial roots in the jawbone instead of teeth, require smart technology and superior testing equipment. Depending on the affected area, it is often challenging to grasp the situation with conventional X-rays due to the interference of metal from fillings and coverings.

iCAT Co. Ltd. has developed an epoch-making computed tomography (CT) device that generates a sharper X-ray image using Z by HP workstations.



Total solutions for dental clinics

A university-based venture company, iCAT was founded in 2003 from research conducted by the Faculty of Dentistry at Osaka University. In its early days, the business sold simulation software for implants and surgical support equipment. iCAT began to market dental CT equipment necessary for acquiring simulation data in 2010.

"We handle total solutions, from CT equipment to the manufacturing of surgical guides required for implant surgery by a dedicated dental technician," says Tatsuya Yamashita, Communications Staff, Marketing Division of iCAT.

iCAT's RevoluX® dental CT device, launched in 2012, displays 360-degree image data with high-precision 3D graphics using GIDORA®, a next-generation CT reconstruction software.

"In the case of a general dental CT device, if there is a metal filling that does not allow X-rays to pass through in the oral cavity, the visual 'noise' may prevent accurate representation of teeth and bones," says Masafumi Harada, Team Leader and Service Engineer with iCAT's Marketing Division. "However, with GIDORA software and the noise reduction effect of processing, it is possible to clearly display even parts that could not be expressed before."

The data reconstructed by GIDORA will also be used in Landmark System™, an implant support system. Landmark System features LANDmarker® software that can simulate the implant placement position as a realistic 3D model. Landmark Guide™ manufactures a surgical guide to reflect the diagnostic results in dental implant surgery, offering a total solution.

Support system plays a decisive role

In addition to controlling the CT device itself, RevoluX requires a workstation to reconstruct data generated by GIDORA. Before deciding on an HP workstation, iCAT planned to adopt Windows 10 IoT Enterprise and upgrade the device's operating system (OS), migrating from a Windows 7 OS.

"The workstations we used before were not sold with this OS installed, so we consulted Ryoyo Electro Co., Ltd. They have a lot of experience as an OS provider supplying solutions to medical institutes, and they introduced us to an HP workstation that can be used as a one-stop service," Yamashita says.

Changing the workstation vendor, which controls the entire CT system, was a key decision for iCAT. It was not simply a question of OS support.

"For example, conventional vendors provided support only with inside sales, and there was no information shared about workstation roadmaps or industry-specific proposals," Harada says. "In addition, when the model was changed, we had the impression that it was not possible to smoothly transition to the successor model."

Along with great sales support, Ryoyo Electro and HP's ability to offer roadmap information and inventory management in line with the industry specifications greatly improved reliability and security.

"The HP Care Pack Priority Access Service was also a big attraction," Harada says.

In the event of a hardware failure, the Silver level service menu promises system profile management and quick response through a dedicated call center, and the Gold level provides dedicated personnel in charge of failure management and response. When problems occur with medical equipment, procedures and treatment may stop, which makes it essential to receive prompt support service.



“THE HP Z2 TOWER G4 WORKSTATION IS MUCH FASTER THAN A CONVENTIONAL WORKSTATION, AND THE 3D PROCESSING SPEED HAS BEEN REDUCED TO ABOUT ONE-THIRD. IT'S GREAT FOR PATIENTS TO HAVE LESS WAITING TIME.”

Masafumi Harada, Team Leader and Service Engineer, Marketing Division, iCAT



“ JAPANESE DENTAL CLINICS ARE OFTEN SMALLER THAN MOST HOSPITALS AND NEED TO BE INSTALLED IN A LIMITED SPACE. THE HP Z2 TOWER G4 WORKSTATION IS MORE POWERFUL THAN TRADITIONAL WORKSTATIONS YET IT IS ALSO SLIM WITH A SMALL FOOTPRINT. ”

Tatsuya Yamashita, Communications Staff, Marketing Division, iCAT



Space-saving specifications meet dental clinic requirements

What are the requirements for RevoluX when actually selecting a workstation? “Not only does it require good graphics performance to perform the 3D reconstruction process, but it also requires high performance in terms of CPU and memory. We focused on the HP Z2 Tower G4 workstation,” says Yamashita.

To that end, the HP Z2 Tower G4 workstation can be equipped with NVIDIA® Quadro® graphics. The latest Intel® Xeon® processor can be selected as the CPU. It is a model with sufficient basic specifications and expandability, such as a maximum memory capacity of 64GB.

“With this level of performance, we’ll be happy with the RevoluX,” Harada says. “After choosing a balance between cost and performance, we finally chose NVIDIA® Quadro® P4000 for graphics and Intel® Xeon® processors for the CPU. We have created a RAID configuration with a 2TB HDD in order to store the captured images and DICOM data after reconstruction.”

The HP unit’s compact presence also played an important role in iCAT’s decision, along with installation requirements.

“Japanese dental clinics are often smaller than most hospitals and need to be installed in a limited space,” Yamashita says. “The HP Z2 Tower G4 workstation is more powerful than traditional workstations yet it is also slim with a small footprint.”

3D processing speed reduced to one-third

In a dental clinic, implants are generally diagnosed after a simulation following a CT exam. For general treatment, however, it is vital to confirm the condition of the affected area right away. Faster processing speeds aid quicker diagnoses leading to careful examination and treatment of many patients.

“The HP Z2 Tower G4 workstation is much faster than a conventional workstation, and the 3D processing speed has been reduced to about one-third,” Harada says. “It’s great for patients to have less waiting time.”

iCAT was established by dentists and thus develop products from the dentists’ point of view, asking questions like “how can we ensure easy-to-use operation?” and “what kind of functions do dentists require?”. A doctor’s comfort with using a product is directly tied to the patient’s own comfort and trust in the dentist.

The HP Z2 Tower G4 workstation provided good merit to both dentists and patients, making it an ideal fit.

“We will continue to work hard to develop new dental CT devices and software that will bring beautiful teeth and smiles to everyone,” Yamashita says.

With its innovative products, iCAT will continue to improve the efficiency of dental work. For its part, HP will continue to do its best to support the company’s technology needs in the future.



LET US HELP YOU CREATE SOME AMAZING WORKSTATION SOLUTIONS TODAY

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