

## DENTRIX Enterprise RT 3.7 System Requirements

### DENTRIX Enterprise Real Time (RT) Option: Commercial, University, Community Health

#### Central Location Database Server

##### Hardware

- Intel Quad Core Xeon X3323 CPU or faster
- 24x (or higher) CD-ROM drive recommended
- Windows<sup>®</sup> 2003 Server; 32 Bit
- Microsoft SQL Server 2000 or SQL Server 2005 patched to latest Service Pack
- 2.0 GB RAM for the first 15 concurrent users. For each additional 15 concurrent users, add 512 Mb RAM and 0.5 Ghz of processing power. After 60 users, the amount of RAM and processing power requirements will be less for adding additional users
- Allow a minimum of 20 GB free Hard Drive space for the data file and 20 GB free space for transaction logs. A RAID drive is strongly recommended.
- Server must be Windows<sup>®</sup> 2003 certified.
- The server hardware requirements given here are for database engines running on Windows<sup>®</sup> 2003, 32-bit Edition only.
- When running DENTRIX Enterprise, memory has a major impact on your system performance. Using more than 2.0 GB of RAM in the server computer will noticeably improve performance. Minimum 2 GB.

**Note:** DoubleSpace<sup>®</sup> or other disk compression utilities should not be used. Additional performance can be gained by having three physical arrays; one each for the OS, Data, and transaction log.

### DENTRIX Enterprise Real Time (RT) Option: Commercial, University, Community Health

#### Central Location THIN Client Application Server

##### Hardware

- **Server:** Intel Quad Core Xeon X3323 CPU or faster
- **Workstation:** Pentium IV or Xeon 2.66 Ghz CPU or faster
- 24x (or higher) CD-ROM drive recommended
- Windows<sup>®</sup> 2003 Server 32 bit edition with Terminal Server licenses activated. Optional: Citrix Presentation Server.
- Server: At least 2.0 GB per 10 concurrent users
- Allow a minimum of 60 GB free space.
- Windows Certified: Make sure the Server is Windows<sup>®</sup> 2003 certified. Note: For application servers that are being used with Citrix<sup>®</sup> and/or Terminal Server, 1 GHz of processing power and 2 GB of memory can

support about 10 –15 thin clients with one network adapter. Additional network adapters on the application server will increase performance. After 30 users an additional server(s) is recommended.

- Citrix® Presentation Server is a recommended option for performance. Notes: When running DENTRIX Enterprise, memory has a major impact on your system performance. Using more than 2.0 GB of RAM in the server computer will noticeably improve performance.
- Disk compression: DoubleSpace or other disk compression utilities should not be used.

### Real Time (RT) Option: Commercial, University Workstation for Central Office or Remote Location

#### Hardware

- Pentium IV 2.0 Ghz CPU or faster
- 24x (or higher) CD-ROM drive recommended
- Windows® XP Professional Edition, Windows® Vista Business Edition
- Workstation: 512 Mb minimum, 1 GB recommended.
- Workstation: 20 GB (or more), with at least 10 GB free. Server must be Windows® 2003 certified.
- Disk compression: DoubleSpace or other disk compression utilities should not be used.

### Real Time (RT) Option: Commercial, University Image 4.5 Hardware Recommendations/Requirements

#### Hardware

- **Server:** Intel Quad Core Xeon X3323 CPU or faster
  - The server or the PC must be Windows® 2003 Server or Windows® XP Professional certified
  - Image server: Windows® 2003 Server 32 bit edition
  - Memory: 4-6 GB (or more), with at least 1 GB free
- **Workstation:** Pentium IV or Xeon 2.66 Ghz CPU or faster
  - Minimum 100GB or larger (Note below)
  - Image Workstation Windows® XP Professional Edition, Windows® Vista Business Edition (Note below)
  - Memory: 1GB RAM
  - 24x (or higher) CD-ROM drive recommended
- **Performance:** When running DENTRIX Enterprise, memory has a major impact on your system performance. Workstations should have a minimum of 512 MB RAM. More memory will equal better performance.

**Note:** The necessary storage space varies with the number and type of Images stored. By determining how many of each type of image is taken in a normal month and using the following guidelines you should be able to determine your overall storage needs. A Bite Wing X-ray requires about 600K of storage space. A Panoramic or Ceph X-ray requires about 1200K of storage. An intraoral picture requires about 800K of storage. DoubleSpace or other disk compression utilities should not be used.

- A USB2 port is required for some sensors/Intraoral Cameras.

### For All Real Time (RT) Options

#### Hardware

- 15" or larger monitor (17" monitor recommended)
- Monitor and video adapter should be capable of 1024 x 768 resolution at 32-Bit color

**Note:** Colors and Resolution: On a smaller 14" monitor, 1024 x 780 resolution may result in images and windows

that are too small for optimal viewing. For optimal viewing, higher quality monitors have a dot pitch of 0.28mm or less, and a refresh rate of 72 Hz or higher at the resolution you plan to use. LCD monitors are not recommended for computers that will be used to diagnose digital X-rays.

#### Recommended Printers:

##### For form printing:

- HP LaserJet® 4250

##### For color printing:

- HP Business InkJet® 2800
- HP Color LaserJet® 3600

##### For dot matrix printing:

- Epson® LQ 2090 (wide carriage)

##### For label printing:

- Dymo® Label Printer 400 Turbo

**IMPORTANT NOTE:** Many laser printers are (or claim to be) HP-compatible. However, DENTRIX Enterprise encounters far more support-related issues involving non-HP printers. Because DENTRIX Enterprise recommends only high quality HP printers, we do not test or support non-recommended printers. DENTRIX Enterprise does not recommend using an inkjet printer as your primary printer.

Different printers: For a typical office, DENTRIX Enterprise recommends installation of 2 printers on the network: a laser printer for all forms, letters, and reports, and a color printer for tooth and perio charts, as well as low-quality image printouts. You may also want a high-quality image printer.

Choosing a printer: Be sure to consider your practice size. Every printer has a “page-per-minute” speed and a recommended number of pages per month.

56K baud US Robotics Courier fax modem, installed on COM2 (when available). Speed: Modem is optional if other network based connection is available. For some practices, modems functioning slower than 28.8 Kbps deliver unacceptable performance for pcAnywhere®, electronic claims, and Internet access.

#### Optional Software:

- Microsoft Word XP or newer
- Citrix Client (for thin client)
- Crystal® Reports
- Virus protection software

#### Workstation:

Future expandability is the key to successful hardware. Taking advantage of expansion options like light pens, voice activation, intraoral imaging, digital X-ray, multimedia, blood pressure monitoring, and others, usually requires an available expansion slot in your computer. For each workstation, you should consider what options you might want in the future and purchase machines with sufficient expansion capability.

#### Choosing a backup:

Tape drives are generally the least expensive backup option and are very reliable. Choose a reliable software package for backups.

**Note:** Separate units for each day of the week are recommended, plus one unit for monthly backup, which is stored off site.

Windows® 2003 environments require a dedicated server. See our Networking Guide for complete information.

**Microsoft Word:** DENTRIX Enterprise offers extensive letter-merge capabilities with Microsoft Word. Note that only versions of Word XP and newer are supported.

**Virus Protection:** A reliable software package that detects and prevents computer viruses is recommended.

DENTRIX Enterprise has tested both Norton AntiVirus and McAfee VirusScan and both products appear to function satisfactorily with DENTRIX Enterprise systems. Norton AntiVirus may cause problems in Citrix Environment.

### DENTRIX Enterprise Real Time (RT) Option:

DENTRIX Enterprise is designed to run seamlessly across a network, allowing users to share the same data throughout the enterprise, from the front desk to the operator at multiple locations. Everything is available to every user at every workstation. It's important, however, to have a good network installed so that DENTRIX Enterprise can perform at an optimal level.

### DENTRIX - Recommended Network Environments:

DENTRIX Enterprise is a robust practice management software program that requires powerful networking software and operating systems to function correctly.

1. Recommended: Windows® 2003 Server
2. Network wiring: Having your hardware installed properly is as important as choosing the proper network environment. About 90% of the time, network difficulties in a practice can be traced to improper cabling or other installation problems. DENTRIX recommends having a hardware technician with MCSE and MSDBA certification install your hardware. Network wiring needs to be installed by a Certified Network Installer. Do not have an electrician or phone wiring professional install your network cables. Many computer stores may say they know how to install a network, but proper installation requires specialized training, not just general computer knowledge. Check your local area for a qualified installation technician. Instruct the installer to use 8-conductor, twisted pair, Category 5 wire with RJ45 connectors. The installer should be aware of X-ray equipment and fluorescent lights, as these can affect your network performance. All cable installed should be certified for use with 100 MB network cards (instead of 10 MB cards). Have all your wiring certified at that speed. Wiring is a critical component of your network take the necessary steps to assure the highest specifications are met.
3. **Power supply:** As part of your network installation, ask your installer to check the power input from electrical outlets throughout the office. Some buildings have a less reliable power supply that can cause network problems. For added protection, you may want to consider an uninterruptible power supply (UPS).
4. **Network cards:** You'll also need network expansion cards in each of the computers which will be networked. This card provides the connection to your network wiring and the interface with your workstation. You'll be using an Ethernet network and there are several quality vendors of Ethernet network cards.
5. **WAN bandwidth requirements:** Each THIN client connection requires 50 k of bandwidth. Each FAT client requires 150 – 200 k of bandwidth.

**Note:** Your network is the circulatory system of your practice management system. We can't emphasize enough how important it is that a qualified technician properly installs all of your hardware. Your local DENTRIX representative can help you decide what you need to get started and may be able to recommend a reputable service provider to get your network up and running.