Hardware and Software Requirements

PENTAGON 2000SQL™ for Windows

20-30 USERS CONFIGURATION

Sample general guideline specification for about 20-30 users.

SQL DATABASE SERVER / FILES & APPLICATION SERVER	
Processors	64-bit, 2 CPU, 8 or more cores per CPU, 3.6 GHz or better recommended. Increase CPU based on concurrent users as needed.
Memory	64 GB RAM minimum, 128 GB recommended. Increase RAM based on concurrent users as needed.
Storage controller	Fast SAS / SCSI / RAID controller with fast caching
Drive configuration	RAID 10, fast SCSI / SAS hard disk drives at 15,000 RPM. Fast SSD drives recommended, large capacity.
Power protection	UPS battery to protect the file server
Operating system	Windows Server 2019/2022 or higher, Standard/Enterprise Edition or higher
SQL Server collation	SQL_Latin1_General_CP1_CI_AS
Database	Microsoft SQL Server 2019/2022 or higher, Standard/Enterprise Edition or higher
Display resolution	Minimum 1280 x 960, maximum 2048 x 1152

APPLICATION SERVER (OPTIONAL)	
Processors	64-bit, 2 CPU, 8 or more cores per CPU, 3.6 GHz or better recommended
Memory	64 GB RAM minimum, 128 GB recommended
Drive configuration	RAID 10, fast SCSI / SAS hard disk drives at 15,000 RPM. Fast SSD drives recommended, large capacity.
Power protection	UPS battery to protect the file server
Operating system	Windows Server 2019/2022 or higher, Standard/Enterprise Edition or higher
Display resolution	Minimum 1280 x 960, maximum 2048 x 1152

Print Server / Scheduling Server

Some tasks, like printing service and scheduling tasks, are recommended to be dedicated to a separate server to ease the burden on the main server. Additional servers can be added as needed.

IIS Server

For apps, websites, and browser-based modules that require an IIS server, it's recommended to have its own dedicated server on the same network. Specs vary based on the module's functions.

- **Optional:** SAN fiber storage, an aggregate of the required number of SAS SSD or 15K RPM disks.
- **Optional:** Replicate all databases to a third SQL server for disaster recovery, with load balancing / clustering as active/passive.

WORKSTATIONS (LOCAL NETWORK)	
Processor	i7 or better
Memory	16 GB RAM or better
Storage	200 GB SSD hard disk drive or better (fast SSD drives recommended)
Monitor	27" or better recommended
Operating system	Windows 11 Professional
Display resolution	Minimum 1280 x 960, maximum 2048 x 1152

Workstations (Remote Access)

Remote Desktop or a Citrix client can be used by various applications: Windows RDP, Mac, iPad, and others. Requirements and performance are mostly based on internet bandwidth, speed, and the capacity of the server the client connects to, which will require a gateway. Multiple servers need to be configured as a farm with load balancing based on the number of remote users.

Configuration	Supports
1 CPU, 4 Cores, 8 GB RAM	3-5 users
1 CPU, 4 Cores, 14 GB RAM	6-10 users
1 CPU, 4 Cores, 28 GB RAM	12-20 users

Cloud Specs Samples

Amazon Workspaces or Azure Virtual Desktop: each user is provided with their own personal cloud-based PC, eliminating the need to connect to servers via RDP. Otherwise, use the RDP concept sample.

- Samples of specific servers using AVD, good for 10-25 users: AVD server as D8as v5 instances (8 vCPUs, 32 GB RAM).
- SQL Server as an E8as VM (8 vCPUs, 64 GB RAM).

Printers, Backup & Imaging

- **Forms & Reports:** Any LaserJet printer, PCL6 compatible (HP LaserJet PCL6 recommended)
- **Bar-Code Labels:** Any Zebra Technologies bar code printer using ZPL / ZPL II, 203 dpi, 4 inch wide
- **Backup:** Any backup drive with capacity matching the hard drive, or another backup method that supports the SQL database backup program
- **Imaging:** Any TWAIN-compatible scanner with an automatic feeder. A network scanner with a static IP is recommended; remote access requires a third-party 'Remote Scan' program. For large-capacity imaging, a dedicated drive is recommended for storage.

Fax Server Requirements

The right combination depends on the expected number of faxes sent daily. Choose the combination most applicable to your operations and fax volume.

Email Fax Services

Send and receive faxes by email directly from Pentagon 2000, no landline or fax machine required. When a document is submitted from Pentagon 2000 to the fax module, it is sent by email to the fax service provider, which delivers the fax to the destination you specified.

Mandatory Backup Systems

It is imperative to implement a backup system that safely and efficiently backs up your SQL database. Losing this data would cause significant setbacks to both operations and finances. Whichever backup utility you choose, make sure it carries out the SQL maintenance plan.

Implementation Guidelines

1. Get a Microsoft professional to install your network and SQL Server.
2. Plan your resources months ahead.
3. Assign team leaders with procedures responsibility.
4. Assign power users who will be your in-house experts.
5. Set up your system defaults and tables according to your business practices and company structure.
6. Plan your data conversion.
7. Get training from Pentagon 2000.
8. Practice on the system using your own data by running business cases.
9. Plan your going-live date.
10. Set up a daily automatic SQL database backup maintenance plan.

You can always call Pentagon 2000 with any question you may have.