

Molecular Devices High-Content Screening

For: MetaXpress® Software, MetaXpress® PowerCore™ Software, MDCStore™ Data Manager, and AcuityXpress™ Software

Computer and Server Specifications for Offline Analysis

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Molecular Devices High Content Screening Computer Requirements

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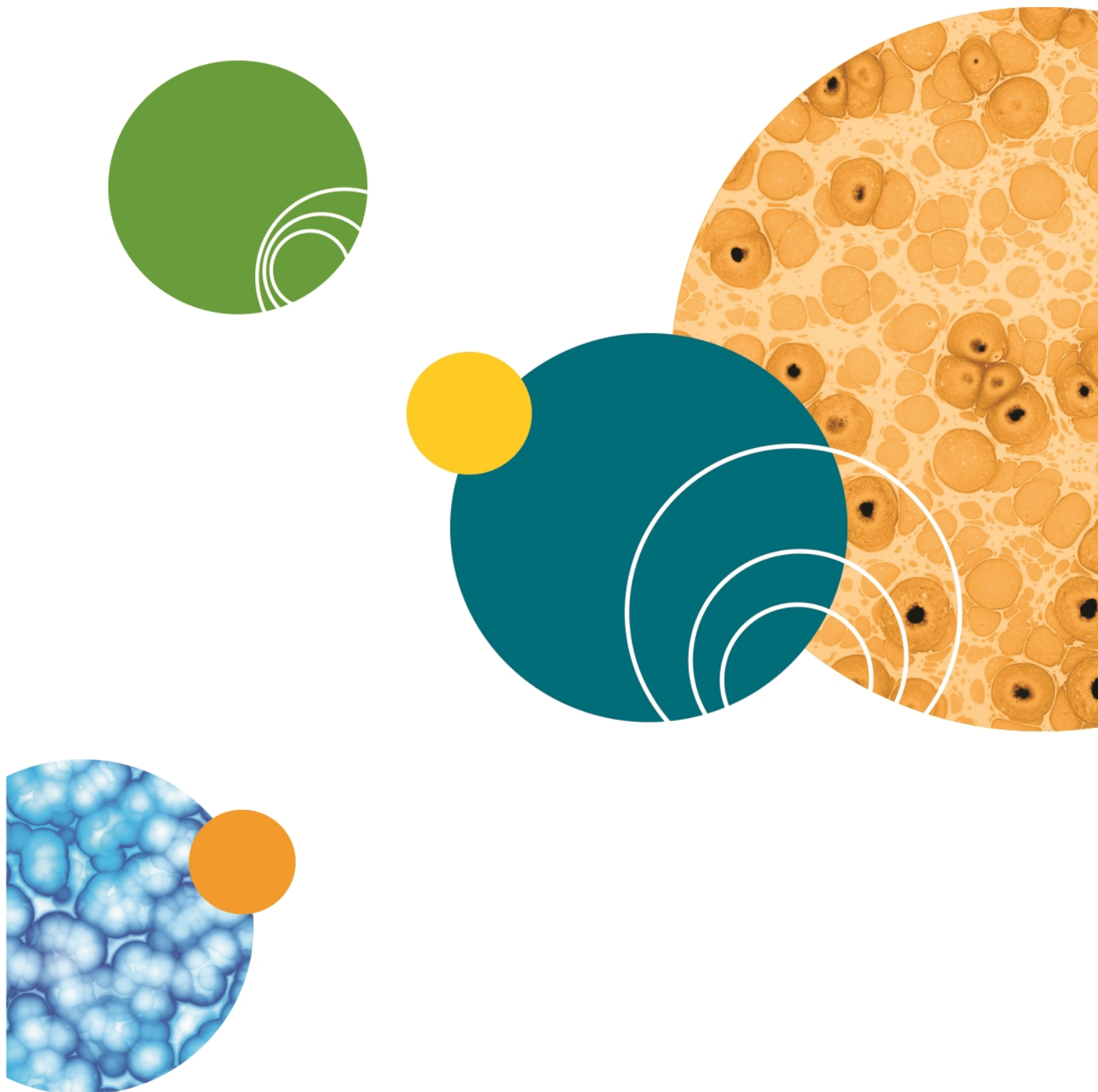
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IT Infrastructure and Support, Database Support

The installation of the ImageXpress® instrument and the instrument workstation is performed by Molecular Devices service engineers. The installation and maintenance of all software on other clients and servers, including the database software, such as Oracle or Microsoft SQL Server should be performed by information technology professionals, such as a Database Administrator (DBA) to manage and optimize the Molecular Devices software and database for your facility. Please consult with Molecular Devices support for guidance on the installation process and help from professional services.

High Content Screening (HCS) generates vast amounts of data. For example, one ImageXpress instrument can generate 250 GB to 500 GB of data each day. See Figure 1: [Example Configuration for Core or Medium Throughput Facility on page 5](#) to represent 2 instruments, using multiple screens per year, generating 100 GB per day, 5 days per week (500 GB per week or ~10 TB to 20 TB per year) and requiring multiple databases and file storage locations. This configuration is given as an example. Your throughput might be different and you might not be using the MetaXpress PowerCore technology altering your specific configuration.

To ensure the full capability of data transfer, we highly recommend gigabit-capable firewalls, routers, and cabling (cat 6) for use with all applicable computers. Unreliable, non-dedicated networks and communication across sub-networks greatly affects the performance of data transfer. Consult with the Molecular Devices support team to determine the optimal set-up for your infrastructure.

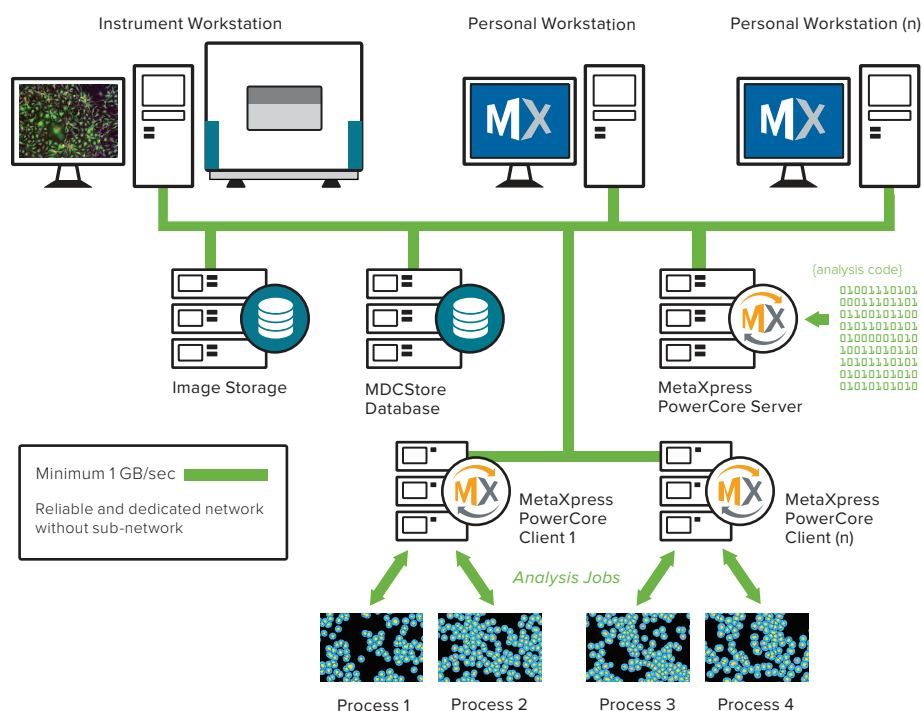


Figure 1-1: Example Configuration for Core or Medium Throughput Facility

AcuityXpress Software, MetaXpress Software and Offline Analysis Clients (v2.0 and Newer)

The following specifications are for AcuityXpress Software, MetaXpress Software version 6.2 or newer and MetaXpress PowerCore Software version 1.5 or newer.

- [Computer Specifications, see page 6](#)
- [Supported Operating Systems, see page 8](#)

To use older versions of MetaXpress Software and MetaXpress PowerCore Software, refer to the *Molecular Devices High Content Screening Computer Requirements Computer and Server Specifications for Offline Analysis* Revision R, available from the Molecular Devices Knowledge Base.

Computer Specifications

- [Computer Specifications for AcuityXpress Software, see page 6](#)
- [Computer Specifications for MetaXpress Software Offline Analysis Clients, see page 7](#)

Table 1-1: Computer Specifications for AcuityXpress Software

	Minimum	Recommended
Computing Hardware	Windows-compatible, 32-bit, 2 CPU cores ¹	Windows-compatible, 64-bit, 4 CPU cores or more ¹
Operating System (OS) ²	Microsoft Windows XP Professional ²	Microsoft Windows 7, 64-bit Professional or Ultimate ²
RAM	2 GB	8 GB or more
Hard Disk Space for Client Programs	10 GB	10 GB or more
Graphic Display	32-bit graphics display, 128 MB video RAM with support for DirectX 9.0 or later versions	1 GB or more video RAM, dual monitor option
USB Ports for Software Security Keys	2 USB ports	4 or more integrated USB 2.0 ports
Network Card	10/100/1000 Mbps (maximum throughput use 1000 Mbps or higher dedicated LAN)	

¹ For MetaXpress PowerCore Software, see [MetaXpress PowerCore Clients and Servers on page 13](#)

² The AcuityXpress Software is installed and runs as a 32-bit application on a 64-bit operating system. See also [Supported Operating Systems on page 8](#)

Table 1-2: Computer Specifications for MetaXpress Software Offline Analysis Clients

	Minimum	Recommended
Computing Hardware	Windows-compatible, 64-bit, 2 CPU cores	Windows-compatible, 64-bit, 6 CPU cores or more ¹
Operating System (OS) ²	Microsoft Windows 7, 64-bit Professional or Ultimate ²	Microsoft Windows 7, 64-bit Professional or Ultimate ²
RAM	8 GB	16 GB or more
Hard Disk Space for Client Programs	10 GB	10 GB or more
Graphic Display	512 MB video RAM	2 GB or more video RAM, dual monitor option, NVIDIA-based graphics hardware
USB Ports for Software Security Keys	2 USB ports	4 or more integrated USB 2.0 ports
Network Card	10/100/1000 Mbps (maximum throughput use 1000 Mbps or higher dedicated LAN)	

¹ For MetaXpress PowerCore Software, see [MetaXpress PowerCore Clients and Servers on page 13](#)

² See [Supported Operating Systems on page 8](#)

Supported Operating Systems

- Supported Operating System for AcuityXpress Clients, see page 8
- Supported Operating System for MetaXpress Offline Analysis Clients, see page 9
- Supported Operating System for MetaXpress PowerCore Software Clients, see page 10

Table 1-3: Supported Operating System for AcuityXpress Clients

	2.x
Windows XP, 32-bit	X
Windows XP, 64-bit	X ²
Windows Server 2003, 32-bit	
Windows Server 2003, 64-bit	
Windows Vista, 32-bit	X
Windows Vista, 64 bit	X ²
Windows Server 2008, 32-bit	
Windows Server 2008, 64-bit R2	
Windows 7, Professional or Ultimate only, 32-bit ¹	X
Windows 7, Professional or Ultimate only ³ , 64-bit ¹	X ²
Windows Server 2012, 64-bit R2	
Windows 8.1, Professional or Ultimate only ³ , 64-bit	

¹ The software is not supported on Windows 7 Starter, Home Basic, Home Premium, or Enterprise editions.

² The AcuityXpress Software is installed and runs as a 32-bit application on a 64-bit operating system. A separate 32-bit ODBC connection must be created.

³ Meta Imaging Series Administrator and MDCStore Tools Utility need to be running with local administrator privileges. See the Knowledge Base (<http://www.moleculardevices.com/support>) for more information.

Table 1-4: Supported Operating System for MetaXpress Offline Analysis Clients

	2.0	3.0	3.1	4.0	5.x	6.x
Windows XP, 32-bit	X	X	X	X	X	
Windows XP, 64-bit						
Windows Server 2003, 32-bit						
Windows Server 2003, 64-bit						
Windows Vista, 32-bit		X ³	X ³	X ³		
Windows Vista, 64 bit		X ³	X ³	X ³		
Windows Server 2008, 32-bit				X ³	X ³	
Windows Server 2008, 64-bit R2				X ³	X ³	
Windows 7, Professional or Ultimate only, 32-bit ¹			X ³	X ³	X ³	
Windows 7, Professional or Ultimate only ³ , 64-bit ¹			X ³	X ³	X ³	X ³
Windows Server 2012, 64-bit R2						
Windows 8.1, Professional or Ultimate only ³ , 64-bit						X ³

¹ The software is not supported on Windows 7 Starter, Home Basic, Home Premium, or Enterprise editions.

² The AcuityXpress Software is installed and runs as a 32-bit application on a 64-bit operating system. A separate 32-bit ODBC connection must be created.

³ Meta Imaging Series Administrator and MDCStore Tools Utility need to be running with local administrator privileges. See the Knowledge Base (<http://www.moleculardevices.com/support>) for more information.

Table 1-5: Supported Operating System for MetaXpress PowerCore Software Clients

	1.3 and older	1.4 and newer
Windows XP, 32-bit	X	
Windows XP, 64-bit	X	
Windows Server 2003, 32-bit	X	
Windows Server 2003, 64-bit	X	
Windows Vista, 32-bit		
Windows Vista, 64 bit		
Windows Server 2008, 32-bit	X	
Windows Server 2008, 64-bit R2	X	X
Windows 7, Professional or Ultimate only, 32-bit ¹	X	
Windows 7, Professional or Ultimate only ³ , 64-bit ¹	X	X
Windows Server 2012, 64-bit R2		X
Windows 8.1, Professional or Ultimate only ³ , 64-bit		X

¹ The software is not supported on Windows 7 Starter, Home Basic, Home Premium, or Enterprise editions.

² The AcuityXpress Software is installed and runs as a 32-bit application on a 64-bit operating system. A separate 32-bit ODBC connection must be created.

³ Meta Imaging Series Administrator and MDCStore Tools Utility need to be running with local administrator privileges. See the Knowledge Base (<http://www.moleculardevices.com/support>) for more information.



Note: If you are creating or editing a module with the MetaXpress Custom Module Editor, Molecular Devices recommends that you use a 64-bit operating system.

The MDCStore Xchange Service uses your default web browser to create and schedule import and export jobs.

MDCStore Xchange Service supports the following web browsers:

- Microsoft Internet Explorer (version 9 or later)
- Mozilla Firefox
- Apple Safari
- Google Chrome



Note: The MDCStore Xchange Service must be installed on the same sub-network as your license key. Molecular Devices recommends that you install the MDCStore Xchange Service on Windows 7, since some image and data conversions are not available in Windows XP.

MDCStore Database Solution (MDCStore Database v2.0 and newer and MDC File Server v1.0 and newer)

Minimum Basic Specifications provide full functionality.

Recommended Specifications provide guidance for best system performance.

However, server specifications depend strongly on the size of the operation. Discuss your server requirements with your computer vendor, your IT department, and Molecular Devices technical support to determine the optimal configuration to fit the size of your organization.

Database Requirements

Molecular Devices recommends installing the database on a server dedicated to the imaging applications.



CAUTION! Do not share the server with other applications.

- Microsoft SQL Server 2005 or newer, Standard, Enterprise, and Datacenter editions.
 - The minimum requirement for compatibility with the MetaXpress PowerCore Software is Microsoft SQL 2005.
- Oracle 11g or Oracle 12c if not using Microsoft SQL Server

Minimum Basic Server Specifications

In minimum recommendations, the same computer can run both the MDCStore Database and the file server together.

- Windows-compatible 64-bit computer with a 2 GHz or faster Intel® Pentium 4 or Xeon® processor
- Windows Server 2008 R2 operating system
- 8 GB system memory (RAM)
- 100 GB available hard disk space for database
- Greater than 1 TB for local image storage (1 TB SATA hard drive)
- 4 USB ports for software security keys

Recommended Specifications for Database Server

(Minimum for MetaXpress PowerCore Software)

Our recommendation for best performance is to run the MDCStore Database and the FileServer on separate computers. The installation, tuning, and optimization of the database should be performed by a professional Database Administrator. Please consult Molecular Devices for recommendations on the use of outside professional services.

- 64-bit computer with the fastest Intel Core™ multi-core processor
- Operating system supported by database application in use
- 12 GB RAM or more



Note: RAM requirements may increase with database size. Molecular Devices recommends that a DBA regularly monitor database size and RAM usage to ensure optimal performance.

- 1 TB or more available space on an SATA or SCSI Raid 0, 5, or 10 storage sub system
- 10/100/1000 Mbps Gigabit network card
- 2 USB ports for software security keys

Image Storage Locations

Our recommendation for best performance is to run the MDCStore Database and the file locations on separate computers.

MDC File Server, File Server Manager

(Available only as a 32 bit application)

- Windows-compatible 64-bit computer with a 2 GHz or faster processor
- Windows Server 2008 R2 (64-bit), Windows Server 2012 R2 (64-bit), Windows 7* (64-bit) operating system, or Windows 8.1) 64-bit operating system
- 1 GB RAM or more
- 2 TB or more available space on an SATA or SCSI Raid 0, 5, or 10 storage sub-system
- 10/100/1000 Mbps Gigabit network card

* Application needs to run with local administrator privileges

UNC paths

Any Operating System Supporting UNC File Paths

For use with MetaXpress PowerCore Software, the machine providing the UNC path should support multiple simultaneous connections. Microsoft Windows 7 support up to 20 connections. The performance of MetaXpress PowerCore Software might be affected with a high number of simultaneous connections.



Note: To check the maximum number of connections, log on with local Administrator rights. Click **Start > Run**, type **cmd**, and click **OK**. Type **net config server** and check for **Maximum Logged On users** number. This is the maximum inbound connections.

MetaXpress PowerCore Clients and Servers

For best performance, use separate computers for the MetaXpress PowerCore Server, MetaXpress PowerCore Clients, MDCStore Database and the FileServer.

For the database server, use the Recommended Specifications as opposed to the Minimum Basic Specifications for optimal system performance. See [Table 1-3: Supported Operating System for AcuityXpress Clients on page 8](#)

For the computer specifications required for MetaXpress PowerCore Servers and Clients Software version 1.5 and newer, see [Table 3-1: MetaXpress PowerCore Servers and Clients Version 1.5 and Newer on page 14](#). To use older versions of MetaXpress Software and MetaXpress PowerCore Software, refer to the *Molecular Devices High Content Screening Computer Requirements Computer and Server Specifications for Offline Analysis* Revision R, available on the Molecular Devices Support website.

For a list of validated MetaXpress PowerCore Server operating systems and MetaXpress PowerCore Client operating systems for each supported database server software (Microsoft SQL Server 2005, Microsoft SQL Server 2012, SQL Server 2014, Oracle 11g, and Oracle 12c), see [Table 3-2: Validated Configurations for Microsoft SQL and Oracle with the MetaXpress PowerCore Server and/or Client on page 16](#).

The performance of MetaXpress PowerCore Software and the speed of analysis will be highly dependent on specific settings and infrastructures. Please consult with Molecular Devices to obtain “benchmarking” data on defined configurations.

While MetaXpress PowerCore Software can be configured in a “seti@home” mode with clients throughout the network working in a screensaver mode, this configuration will not provide the maximum performance expected from the MetaXpress PowerCore Software. To take full advantage of the speed of MetaXpress PowerCore Software, Molecular Devices recommends using the dedicated computers for analysis (recommended specifications).



Note: For the previous specifications, refer to *Molecular Devices High Content Screening Computer Specifications Computer and Server Specifications for Offline Analysis with the AcuityXpress™ and MetaXpress® Software, MDCStore™ Data Management Solution, and MetaXpress® PowerCore™ Software*, revision R.

Table 3-1: MetaXpress PowerCore Servers and Clients Version 1.5 and Newer


	Minimum	Recommended
Computing Hardware	Windows-compatible, 64-bit with the fastest Intel Core multi-core processor	
Processor Cores (Server)	<ul style="list-style-type: none"> 1 core for the operating system 1 core per Server 	<ul style="list-style-type: none"> 1 core for the operating system 1 core for every two Clients supported by the Server
Processor Cores (Clients)	<ul style="list-style-type: none"> 1 core for the operating system 1 core per Client 	<ul style="list-style-type: none"> 1 core for the operating system 1 core per Client
3D Analysis Processor Cores (Clients)	<ul style="list-style-type: none"> 1 core for the operating system 2 cores per Client (If your system uses Hyper-Threading, count each logical core separately.) 	<ul style="list-style-type: none"> 1 core for the operating system 2 cores per Client (If your system uses Hyper-Threading, count each logical core separately.)
Operating System	<p>See Validated Configurations for Microsoft SQL and Oracle with the MetaXpress PowerCore Server and/or Client on page 16</p> <p>For optimal performance, Molecular Devices highly recommends using a Server Operating System to host the MetaXpress PowerCore Server</p> <hr/> <p> Note: Microsoft Windows 7 has a limit of 10 or 20 remote device connections, depending on the version.</p>	<p>See Validated Configurations for Microsoft SQL and Oracle with the MetaXpress PowerCore Server and/or Client on page 16</p> <p>Windows Server 2008 R2</p>
Database Server Software	See Validated Configurations for Microsoft SQL and Oracle with the MetaXpress PowerCore Server and/or Client on page 16	
RAM (Server)	512 MB	2 GB or more for 8 distributed processes 4 GB for 16 distributed processes
RAM (Clients)	512 MB per CPU	1 GB or more per CPU
3D Analysis RAM (Server)	4 GB for server process	8 GB for server process
3D Analysis RAM (Clients)	2 GB per Client	4 GB per Client

Table 3-1: MetaXpress PowerCore Servers and Clients Version 1.5 and Newer (continued)

	Minimum	Recommended
Hard Disk Space for Server and Image Storage	10 GB or more	
USB port for Software security key (Server only)	1 open USB port on Server computer	

Molecular Devices recommends using the same Operating System on both the MetaXpress PowerCore Server and Clients.



Note: Virtualized hardware is not supported.

The only supported operating systems are the ones defined in this document.

All operating systems and database server applications should be set to US-English localization.

Table 3-2: Validated Configurations for Microsoft SQL and Oracle with the MetaXpress PowerCore Server and/or Client

Operating System (Microsoft Windows only)	Database	Database Driver
Windows 7, 64-bit	MS SQL 2005 (SP4)	SQL Server ODBC driver 6.01.7601.17514
	MS SQL 2012	SQL Server ODBC driver 6.01.7601.17514
	MS SQL 2014	SQL Server ODBC driver 6.01.7601.17514
	Oracle 11g R2	Oracle 11g, 64-bit (11.02.0.01)
	Oracle 12c	Oracle 12c, 64-bit (12.01.00.01)
Windows 8.1, 64-bit	MS SQL 2005 (SP4)	SQL Server ODBC driver 6.03.9600.16384
	MS SQL 2012	SQL Server ODBC driver 6.03.9600.16384
	MS SQL 2014	SQL Server ODBC driver 6.03.9600.16384
	Oracle 11g R2	Oracle 11g, 64-bit (11.02.0.01)
	Oracle 12c	Oracle 12c, 64-bit (12.01.00.01)
Windows Server 2008 R2, 64-bit	MS SQL 2005	SQL Server ODBC driver 6.01.7601.17514
	MS SQL 2012 (R2)	SQL Server ODBC driver 6.01.7601.17514
	MS SQL 2014	SQL Server ODBC driver 6.01.7601.17514
	Oracle 11g R2	Oracle 11g, 64-bit (11.02.0.01)
	Oracle 12c	Oracle 12c, 64-bit (12.01.00.01)
Windows Server 2012 R2, 64-bit	MS SQL 2005 (SP4)	SQL Server ODBC driver 6.03.9600.16384
	MS SQL 2012	SQL Server ODBC driver 6.03.9600.16384
	MS SQL 2014	SQL Server ODBC driver 6.03.9600.16384
	Oracle 11g R2	Oracle 11g, 64-bit (11.02.0.01)
	Oracle 12c	Oracle 12c, 64-bit (12.01.00.01)

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