Leica Application Suite
System Requirements V3.8.0
Leica Application Suite

System Requirements

Includes computer specifications for other Leica Industry Division Software

Abstract

This document describes the microscopes, cameras and accessories that are supported by this version of LAS and defines the computer system requirements. You should read this document before installing your copy of this software.

Also included in this document are computer systems specifications for use with some other current Leica Industry Division software products. Please refer to the software product specifications for hardware supported by these products and not this document.

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1 Supported Microscopes, Cameras and Accessories

The following Leica microscopes and digital cameras are supported.

For other Leica Industry division software products please refer to the software product specifications for supported hardware and not this section.

For **LAS Power Mosaic**, please see Section 3 for supported equipment.

### 1.1 DM Microscopes

- DM8000, DM12000
- DM1000, 2000, 3000, 4000 B/M, 4500 B, 4500 P, 5000 B, 5500 B, 6000 B/M
- DM13000, 4000 B, 5000 M and 6000 B
- DM500, DM750, DM750 P
- FSC, FSM
- CTR 4000-6500, 7000

**Accessories for DM**
- Scanning stages
- External light source EL6000
- External filter wheels
- TIRF module
- Motorized duo documentation tube
- Oasis-blue XYZ controller

### 1.2 Stereo- and Macroscopes

- M205A, fully motorized stereomicroscope with 20.5:1 zoom range
- M205FA, fully motorized fluorescence stereomicroscope with 20.5:1 zoom range
- M165FC, manual fluorescence stereomicroscope with coded filter wheel, zoom and iris and 16.5:1 zoom range
- M205C, coded stereomicroscope with 20.5:1 zoom range
- M165C, coded stereomicroscope with 16.5:1 zoom range
- M125, manual stereomicroscope with 12.5:1 zoom range
- DVM2000
- DVM3000 and DVM5000 (for firmware update only)
- M50, M60 and M80, manual stereomicroscopes
- LED illumination LED3000 RL (ring light)
- LED illuminations LED5000 CXI (coax) and LED3000 NVI (near vertical)
- LED illumination for VZ series (10450433 and 10450432)
- LED illumination LED3000 RL, LED5000 CXI, LED3000 NVI, LED5000 MCI, LED5000 HDI and LED5000 RL-80/48
- KL1500 LED Plus
- M-Series Long / Short Focus Columns (10450257 and 10450222)
M-Series Long / Short Motor Focus Columns (10450258 and 10450050)
USB interface for new manual focus drive coarse/fine
MZ-Series Long / Short Motor Focus Columns (10446041 and 10446176)
FluoCombi™ attachment for fluorescence stereomicroscope with coded objective positions
Fluorescence objective revolver with coded objective positions
MZ 16A and MZ 16FA
Z 6 APOA and Z 16 APOA
IsoPro™ motorized XY stage
Configuration of UMC
Configuration of new footswitch
MZ 16F, MZ 16
MZ 12.5
MZ10 F
MZ 9.5, MZ 7.5, MZ 6
MS 5
S6D
S8 APO
Z6 APO, Z16 APO
VZ85, VZ85 R, VZ85 C, VZ85 RC, VZ105, VZ105 C, VZ15 M
EZ4 D, EZ4 HD
Macrofluo™
Fluocombi / Revolving nosepiece
Support by USB for TL RCI and IsoPro™ motorized XY stage
Support for USB / RS 232 serial adapter (Art. No. 11532295)
Transmitted light base for Stereo Microscopes TL RCITM
External light sources (Photonic CLS 150XD, CLS 150LS, Schott KL 2005 LCD, EL6000)
Oasis-blue XY controller
1.3 Cameras

This release supports the following Leica Digital Cameras on a Windows PC meeting the requirements detailed in Section 2:

<table>
<thead>
<tr>
<th>FireWire A (1394a)</th>
<th>FireWire B (1394b)</th>
<th>USB2</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFC280</td>
<td>DFC295</td>
<td></td>
</tr>
<tr>
<td>DFC290</td>
<td>DFC290 HD</td>
<td></td>
</tr>
<tr>
<td>DFC320</td>
<td>DFC310 FX</td>
<td></td>
</tr>
<tr>
<td>DFC300 FX</td>
<td>DFC345 FX</td>
<td></td>
</tr>
<tr>
<td>DFC340 FX</td>
<td>DFC360 FX</td>
<td></td>
</tr>
<tr>
<td>DFC350 FX</td>
<td>DFC365 FX</td>
<td></td>
</tr>
<tr>
<td>DFC420</td>
<td>DFC400</td>
<td></td>
</tr>
<tr>
<td>DFC420 C</td>
<td>DFC425</td>
<td></td>
</tr>
<tr>
<td>DFC480</td>
<td>DFC425 C</td>
<td></td>
</tr>
<tr>
<td>DFC490</td>
<td>DFC450</td>
<td></td>
</tr>
<tr>
<td>IC D</td>
<td>DFC450 C</td>
<td></td>
</tr>
<tr>
<td>IC 3D</td>
<td>DFC495</td>
<td></td>
</tr>
<tr>
<td>DFC500</td>
<td>DVM2000</td>
<td></td>
</tr>
</tbody>
</table>

**NOT Supported**

LAS does not support the following:

- Matrox Meteor 2 or Leutron frame grabbers
- Leica EC3
- Leica DFC300, DFC300F, DFC350F
- Leica DC100, DC150, DC160, DC180, DC200, DC250, DC300, DC300F, DC300FX, DC350F, DC350FX, DC480, DC500
2 Computer System (PC) Specification

2.1 Software Products using this Specification

PC Specification for LAS software

This PC specification is targeted at Leica LAS software V3 or higher.

The minimum recommended PC specification is described below. Lower specifications may limit the performance and some features of LAS.

If using Windows Vista or Windows 7, a Windows experience index 4 is required for simple acquisition and 5 or higher where multiple images are being processed.

Other Leica Software using this PC Specification

This PC specification also applies to the following software products with the restrictions mentioned:

Leica Servers - only with Windows XP and Vista 32-bit
Leica QWin - only with Windows XP and Vista 32-bit
Leica Materials Workstation - only with Windows XP and Vista 32-bit
Leica Stereo Explorer – only with Windows XP 32-bit
Leica IM – only with Windows XP 32-bit
Leica Map Start and Premium

For all other software products, please refer to their individual specifications.

Leica LAS EZ software

LAS EZ does not require a Firewire interface. Minimum RAM of 1Gb combined with the other specification details as follows is acceptable.

Leica DFC Twain software

The PC specification will depend on the requirements of the host software application and the suppliers own specifications for their software should be followed. The specification following is typical.

2.2 Processor

Intel Core 2 Duo to Core i7 processor with nominal CPU clock of 2.4GHz or faster and including at least:

- Dual CPU
- 2Mb L2 cache
- 800 Mhz FSB

2GB or higher of system RAM is strongly recommended. Where application is limited to LAS Core and Windows XP, 1GB may be acceptable. For processing large image stacks, 4GB is useful.

Hard Drive: 80GB or higher, SATA 7200 rpm, 8MB cache, NTFS

Display and Graphics - 19” or greater size monitor, one or two monitors, set to screen resolution of 1920 x 1200 or 1600 x 1200 or 1280 x 1024

Graphics card minimum parameters:

- 128Mb Ram minimum for single screen or 256Mb Ram for dual screen
- 128-bit memory bus width
- 32 bits operation
Support for Direct X Version 9c or Direct X Version 10 for Windows Vista or Windows 7.

PCI Express

The minimum graphics adaptors are the Radeon X800, ATI Fire GL V7200 and recommended adaptors are NVidia GeForce 9800GT, ATI FirePro V4800 or equivalent using the PCI Express bus or later models.

For Dual Screen operation, Windows 7 is recommended.

‘Integrated’ graphics cards may have reduced performance and are not recommended. Use of system or shared memory by the graphic card will impair performance. Some annotation and measurement overlays may not perform as expected.

It is vital that the manufacturer’s latest graphics drivers are installed for LAS to display images and the user interface correctly and particularly for use with the LAS 3D Viewer and LAS MultiTime – Movie modules. Obtain these from the PC or graphics board manufacturer, not Microsoft Corp.

2.3 Interfaces

Leica DFC Cameras

Depending on the type of camera, a powered 1394a 6-pin or 1394b 9-pin FireWire OHCI port is required for use with Leica DFC cameras. As FireWire interface boards from some manufacturers have issues with non-Leica drivers, we recommend the use of the FireWire boards in the list below. Please note that you will also need the FireWire-b cable 12730186, if both camera and PC have a 1394b or FireWire-b connector.

A Firewire B card is strongly recommended when using Windows 7.

The following cards are recommended:

<table>
<thead>
<tr>
<th>Leica Art Nr</th>
<th>Manufacturer</th>
<th>Model</th>
<th>Ports, Type of Card</th>
<th>Chipset</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 730 183</td>
<td>LaCie</td>
<td>130822</td>
<td>1394a&amp;b, PCI-32</td>
<td>VIA</td>
</tr>
<tr>
<td>12 730 210</td>
<td>IOI</td>
<td>FWB-PCIE 1x21B</td>
<td>1394b, PCI-express</td>
<td>Agere</td>
</tr>
<tr>
<td>12 730 447</td>
<td>IOI</td>
<td>FWB-PCIE1x20</td>
<td>1394b, PCI-express, low profile</td>
<td>Agere</td>
</tr>
<tr>
<td>11 600 274</td>
<td>IOI</td>
<td>FWB-PCI02</td>
<td>1394b, PCI-64</td>
<td>Texas Instr.</td>
</tr>
<tr>
<td>36 000 191</td>
<td>Zenkuman</td>
<td>PFW-85</td>
<td>1394b, PCI-32</td>
<td>Texas Instr.</td>
</tr>
</tbody>
</table>

Most DFC cameras are supplied with a suitable FireWire cable, some DFC FX cameras do not come with cables unless they are also ordered at the same time.

A so-called bilingual Firewire a-b cable is required if you intend to use a Firewire A connected camera with a Firewire B card.

The Firewire 1394a Laptop power kit 12730188 is needed for laptops or notebooks, which have a non-powered 4-pin (iLink) or 6-pin FireWire port. A bilingual Firewire cable a-b (Art-Nr 12730187) is required if the camera has a Firewire B port.

The Firewire 1394b Notebook kit 12 447 066 is needed for notebooks which have a PC card express slot but do not have an on board Firewire port. A Firewire cable b-b (Art-Nr 12730186) is required if the camera has a Firewire b port.

See also section 2.6 concerning Notebook recommendations.

Other Leica Cameras and EZ4 D

USB2 port is required for the EZ4 D, EZ4 HD, IC80 HD, ICC50 or ICC50 HD.

Microscopes

USB2 interface ports are needed for the microscope and other external device control.
One or two serial interface ports for older generation microscopes.

**Dongles**

A USB port is required for each application in use at the same time that requires a dongle:

- Leica QWin and Materials Workstation – one combined
- Stereo Explorer
- Leica Map Start or Premium
- Leica LAS optional license dongle.

### 2.4 Operating System

Supported versions of Windows are:

- Windows 7 Professional or Ultimate, 32 or 64-bit
- Windows Vista Business with service pack 2, 32-bit only
- Windows XP Professional Edition with service pack 3, 32 bit only


Note that a back-up device and a back-up strategy for images and databases is essential. The user must ensure that regular and reliable back up of important files is performed.

The Windows Hardware Detection Service must not be disabled or LAS will not start.

### 2.5 Other Components

Keyboard and PC Mouse with wheel. The wheel should also act as a third button.

DVD-ROM compatible drive is required to install the LAS software.

400W PSU if all options are installed.

Full-height card slots for optional interface boards e.g. Oasis. The slot next to the Oasis board needs to be free or at least the next board must have low profile components.

Approximately 2 Gbytes of disk space for a full installation and an additional free space of 10Gbytes for efficient operation. Further space is required for data and image storage, which depends on the application and frequency of use. The free space must be checked regularly.

### 2.6 Notebook Recommendations

Notebooks and Laptops are normally designed for power saving rather than performance and so it is necessary to be careful in identifying suitable configurations. The true ‘desktop replacements’ using desktop components in a movable but heavy case should be compared with the Desktop specification above.

Some Notebooks have automatic power saving features. Please be aware that LAS cannot control these and if they become activated, the performance of LAS will be very poor as will other programs.

Notebooks cannot be fitted with the Oasis XYZ control board so cannot be used with LAS Power Mosaic, LAS Cleanliness Expert, LAS QWin etc when a motorised stage or focus are to be used and are connected to an Oasis XYZ control board.
Otherwise the recommended processor is the Intel Core 2 Duo or Core i7 with speed greater than 2.0GHz. As Notebook configured processors use a slower memory bus and slower hard-drives, the overall performance is not as good as the Desktop equivalents.

The smaller screen size of Laptops may not be comfortable for use with high-resolution images. Make sure that the vertical resolution is at least 1024 lines because many Notebooks have lower vertical resolution that limits the image size and panel display.

For Notebooks it is important to ensure that the display does not use an ‘integrated’ graphics controller. This will severely restrict live image performance. A dedicated and modern graphics controller is needed such as NVidia Quadro NVS 160M or later.
3 LAS Power Mosaic Supported Components

Note – Some Oasis boards may not be correctly configured for use with Power Mosaic pattern navigator. If you have Power Mosaic Plus and pattern navigator does not appear, please contact DI.Support to get the Oasis card license code updated.

### 3.1 Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 730 181</td>
<td>LAS Power Mosaic</td>
</tr>
<tr>
<td>12 730 182</td>
<td>LAS Power Mosaic Plus</td>
</tr>
<tr>
<td>12 730 193</td>
<td>Oasis-blue XYZ kit for Power Mosaic</td>
</tr>
<tr>
<td>12 730 195</td>
<td>Oasis-blue Encoder kit for Power Mosaic</td>
</tr>
<tr>
<td>12 730 196</td>
<td>Märzhäuser Scanning Stage, 130x85mm, 2mm with Encoders</td>
</tr>
<tr>
<td>12 730 197</td>
<td>Märzhäuser Scanning Stage, 130x85mm, 2mm</td>
</tr>
<tr>
<td>12 730 198</td>
<td>Stage insert for one slide for SCAN 130 x 85</td>
</tr>
<tr>
<td>12 730 199</td>
<td>Stage insert for four slides for SCAN 130 x 85</td>
</tr>
</tbody>
</table>

Note – LAS Power Mosaic and LAS Power Mosaic Plus do not support motorised focus with Stereomicroscopes.

### 3.2 PC Requirements

Due to the large image data handled by Power Mosaic, a very fast PC is required with at least 4Gb RAM. The hard-drive must be very fast and very large.

### 3.3 Microscopes supported

- DM 5500 B, 6000 B/M
- DM 4000 M - With addition of external focus motor
- Generic microscopes with motor stage and motor focus
- Macroscopes (Z16APOA, Z6APOA, Z16APO, Z16APO) or any Leica current stereomicroscope.

### 3.4 DFC Cameras Supported by Power Mosaic

Please note ONLY the cameras mentioned are supported for Power Mosaic.

**TurboScan and standard scan mode**
- DFC400, DFC300FX, DFC310FX, DFC350FX, DFC360FX - Require trigger cable included with Oasis-blue kit

**Standard scan only – limited performance**
- DFC290, DFC295, DFC420, DFC425 - Do not use a trigger cable.

The Set Shading feature sometimes fails with these cameras, please contact Di.Support for advice.
3.5 Oasis-Blue Power Mosaic Kit

12 730 193 Oasis-blue Controller board and Cable Kit for stepper stages includes:

- XY Cable with Märzhäuser Round Connectors
- Z axis and DFC Trigger Cable split cable
- Smart Move or Joystick I/F Cable
- MIC Box Pass-Thru (cable / ribbon cable / plate)
- Focus adapter for Märzhäuser/DM6000/ Prior focus drive

3.6 Motorized Stage with Stepper Motors

The current Märzhäuser 'Scan' series for DM4-6K and for DMI can be used. For the upright stands, the following are recommended:

12 730 196 Märzhäuser Scanning Stage, 100x80mm, 2mm with Encoders
   Requires 12 730 195 Oasis-blue Encoder kit for Power Mosaic
12 730 197 Märzhäuser Scanning Stage, 100x80mm, 2mm

At least one stage insert is also required:

12 730 198 Stage insert for one slide for SCAN 130 x 85
12 730 199 Stage insert for four slides for SCAN 130 x 85

The Smart Move controls the stage and focus - the focus knob on the microscope stand is disabled.

11 505 180 Smart Move for DM/DMI Series

3.7 Motorized Focus

DM5500-6000 use internal focus motor
   Driven by Oasis using CTR MIC control cable with Z breakout.

DM4000 use external Märzhäuser focus drive
   Included with 11 101 938 DM4000 M stand

3.8 Encoder Option

12 730 195 Oasis-blue Encoder kit for Power Mosaic
   Used where best accuracy is required with high-mag objectives
   Daughter board that fits on the Oasis-Blue board
   Modified XY Cable for Encoder Inputs

Requires 12 730 196 Märzhäuser Scanning Stage, 100x80mm, 2mm with Encoders
4 Factors that may reduce performance

The following is a non-exclusive list of PC components that may degrade the performance of LAS. It is strongly recommended that the performance of LAS with a specific PC is tested to be acceptable before committing to its use.

LAS is for Windows-PC based computers only.

- Integrated graphics, AGP graphics, graphics that share CPU memory, using a mobile graphic device
- Display on dual monitors with low performance graphics card
- Use of displays with less than 1024 vertical resolution
- Less than 400 Mbytes free RAM before LAS starts (700Mbyte is required for LAS MultiFocus and LAS MultiStep, 1Gb for LAS Power Mosaic). With Windows Vista or Windows 7 2Gb or more RAM is essential.
- Other programs running at the same time as LAS
- Using a Celeron processor or any processor other than the recommended Intel Core range
- Using Athlon processors
- Using any power saving on the system
- Using ‘sleep’ mode ‘hibernation’, auto power down modes
- Windows versions other than those recommended
- Personally constructed PCs or operating systems
- An environment that is an upgrade of the original manufacture-installed operating system
- Multi-boot environments
- Shadow or Animated cursors and UI graphics
- There is no expectation that the use of hyper threading, will give a performance gain
- Saving images on a remote / server PC