

PC Recommendation for  
**ORCA-Fire / Quest / Quest 2 / Quest IQ / Fusion BT /  
Fusion**

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This document provides the recommended PC configuration for Hamamatsu ORCA-Fire / Quest / Quest 2 / Fusion BT / Fusion camera.

- [C16240-20UP/-30UP](#) : ORCA-Fire
- [C15550-20UP](#) : ORCA-Quest
- [C15550-22UP](#) : ORCA-Quest 2
- [C15550-23UP](#) : ORCA-Quest IQ
- [C15440-20UP](#) : ORCA-Fusion BT
- [C14440-20UP](#) : ORCA-Fusion

## • Notice

- Optimum performance can be achieved under the conditions describe in this document, but it is not guaranteed.

# Single Camera with CoaXPress

Items	Recommended	
Camera	<a href="#">C16240-20UP/-30UP (ORCA-Fire)</a> <a href="#">C15550-20UP (ORCA-Quest)</a> <a href="#">C15550-22UP (ORCA-Quest 2)</a> <a href="#">C15550-23UP (ORCA-Quest IQ)</a>	<a href="#">C15440-20UP (ORCA-Fusion BT)</a> <a href="#">C14440-20UP (ORCA-Fusion)</a>
Model	<a href="#">Dell Precision™ 5860 Tower Workstation</a>	
CPU	<a href="#">Intel Xeon W3-2435</a>	
OS	Windows 11 / 10 Professional 64-bit Operation confirmed Linux Ubuntu24.04.3 LTS, Debian13 amd64 (32-bit OS is not supported)	
RAM	64 GB or more	32 GB or more
Frame Grabber	<a href="#">Active Silicon AS-FBD-4XCXP6-2PE8</a> <a href="#">Active Silicon AS-FBD-4XCXP12-3PE4</a>	<a href="#">Active Silicon AS-FBD-2XCXP6-2PE8</a> <a href="#">Active Silicon AS-FBD-2XCXP12-3PE4L-F</a>
	installed in SLOT2, 4 or 5	
Drivers	<a href="#">DCAM-API</a> v26.1 or later	

- By using the frame bundle, it is possible to realize high-speed capture (Fire : 19,500 or more / Quest (2) : 19,000 or more / Fusion (BT) : 41,000 or more) with a small area setting.
- Changing the following BIOS settings will help to achieve highest performance.
  - Disable (uncheck) Intel Speed Shift Technology under the Power section.
  - Enable (check) Intel Trusted Execution Technology(TXT) under the Virtualization Support section.
  - Disable (uncheck) SpeedStep and C-State under the Performance section.
  - Enable (check) Turbo Boost and Hyper-Threading under the Performance section.
  - Disable (uncheck) VT for Direct I/O under Virtualization Support. (Debian)

# Single Camera with USB 3.0 (USB 3.1 Gen1)

Items	Recommended
Camera	<a href="#">C16240-20UP/-30UP (ORCA-Fire)</a> <a href="#">C15550-20UP (ORCA-Quest)</a> <a href="#">C15550-22UP (ORCA-Quest 2)</a> <a href="#">C15550-23UP (ORCA-Quest IQ)</a> <a href="#">C15440-20UP (ORCA-Fusion BT)</a> <a href="#">C14440-20UP (ORCA-Fusion)</a>
Model	<a href="#">Dell Precision™ 5860 Tower Workstation</a>
CPU	<a href="#">Intel Xeon W3-2435</a>
OS	Windows 11 / 10 Professional 64-bit Operation confirmed Linux Ubuntu24.04.3 LTS, Debian13 amd64
RAM	16 GB or more
Interface connector	USB 3.2 Gen1 interface connector
Drivers	<a href="#">DCAM-API</a> v26.1 or later

- By using the frame bundle, it is possible to realize high-speed capture (Fire : 19,500 or more / Quest (2) : 19,000 or more / Fusion (BT) : 41,000 or more) with a small area setting.
- Changing the following BIOS settings will help to achieve highest performance.
  - Disable (uncheck) Intel Speed Shift Technology under the Power section.
  - Enable (check) Intel Trusted Execution Technology(TXT) under the Virtualization Support section.
  - Disable (uncheck) SpeedStep and C-State under the Performance section.
  - Enable (check) Turbo Boost and Hyper-Threading under the Performance section.

# Recommended DIY PC configuration for Single Camera

Camera Interface	CoaXPress (Quad CXP-6)	CoaXPress (Dual CXP-6)	USB3.0 (USB 3.1 Gen1)	Note
<b>CPU</b>	<a href="#">Intel Xeon E5-1630 v4</a> or <a href="#">better</a>			We recommend that you use at least a single 3.2Ghz Quad (or more) Core High End CPU with a CPU Mark equal or higher than the E5-1630 v4 from this benchmark table: <a href="#">High End CPU's - Intel vs AMD</a> Frequency is more important than the number of CPU cores.
<b>OS</b>	Windows 11 / 10 Professional 64-bit			Regarding CoaXPress, 32-bit Edition is not supported.
<b>RAM</b>	>= 64 GB	>= 32 GB	>= 16 GB for Fusion (>= 32 GB for Quest, Fire)	<a href="#">DDR4</a> 2666MHz or higher-speed
<b>Chipset</b>	<a href="#">Intel C422 series</a> or newer			e.g. <a href="#">C422</a> , <a href="#">W790</a>
<b>Free Slot</b>	PCIe2+ x8 wired for 2PE8 type PCIe3+ x4 wired for 3PE4 type		PCIe2+	PCIe Gen2 is mandatory for 2PE8 and USB, but faster Gen should cover Gen2. PCIe Gen3 is mandatory for 3PE4, but faster Gen should cover Gen3.
<b>BIOS</b>	Latest			PCIe slot performance sometimes is improved in the latest BIOS. We highly recommend to adjust the following BIOS settings: <ol style="list-style-type: none"> <li>1. Disable Processor C-state control to force C0 state for all processors.</li> <li>2. Enable Intel <a href="#">Turbo Boost</a>.</li> <li>3. Disable Intel <a href="#">SpeedStep</a> if allowed with Turbo Boost Enabled. Enable Turbo Boost may mutually exclude disabling SpeedStep.</li> <li>4. Enable Intel <a href="#">Hyper-Threading</a>.</li> <li>5. Disable (uncheck) VT for Direct I/O under Virtualization Support. (Debian+CXP)</li> <li>6. Disable IOMMU for AMD CPU. (Linux+CXP)</li> <li>7. Disable Intel Speed Shift Technology.</li> <li>8. Disable Aspm.</li> </ol>

# Storage Size vs. Number of Recorded Images

Free space	Number of Recorded Images <sup>(1)</sup>	Time in seconds <sup>(2)</sup> (Approx.)
		Standard (115 fps) <sup>(3)</sup>
32 GB	1,636	13
64 GB	3,273	27
128 GB	6,547	54
256 GB	13,095	109 ( ~1 min )
512 GB	26,191	218 ( ~3 min )
1 TB	52,382	436 ( ~7 min )
2 TB	104,765	873 ( ~14 min )
4 TB	209,531	1,746 ( ~29 min )

1. In case of Mono16, 1x1 binning and full size.

2. Numbers are rounded down.

3. Depends on storage writing speed and application writing to storage performance. Writing frame rate is sometimes slower than camera capturing speed.

# Storage Size vs. Number of Recorded Images

Free space	Number of Recorded Images <sup>(1)</sup>	Time in seconds <sup>(2)</sup> (Approx.)	
		Ultra Quiet (5.00 fps) <sup>(3)</sup>	Standard (120 fps) <sup>(3)</sup>
<b>32 GB</b>	1,820	364 ( ~6 min )	15
<b>64 GB</b>	3,640	728 ( ~12 min )	30
<b>128 GB</b>	7,281	1,456 ( ~24 min )	60 ( ~1 min )
<b>256 GB</b>	14,563	2,912 ( ~48 min )	121 ( ~2 min )
<b>512 GB</b>	29,127	5,825 ( ~97 min )	242 ( ~4 min )
<b>1 TB</b>	58,254	11,650 ( ~194 min )	485 ( ~8 min )
<b>2 TB</b>	116,508	23,301 ( ~388 min )	970 ( ~16 min )
<b>4 TB</b>	233,016	46,603 ( ~776 min )	1,941 ( ~32 min )

1. In case of Mono16, 1x1 binning and full size.

2. Numbers are rounded down.

3. Depends on storage writing speed and application writing to storage performance. Writing frame rate is sometimes slower than camera capturing speed.

# Storage Size vs. Number of Recorded Images

Free space	Number of Recorded Images <sup>(1)</sup>	Time in seconds <sup>(2)</sup> (Approx.)	
		Ultra Quiet (25 fps) <sup>(3)</sup>	Standard (120 fps) <sup>(3)</sup>
<b>32 GB</b>	1,820	73 ( ~1 min )	15
<b>64 GB</b>	3,640	146 ( ~2 min )	30
<b>128 GB</b>	7,281	291 ( ~4 min )	60 ( ~1 min )
<b>256 GB</b>	14,563	583 ( ~9 min )	121 ( ~2 min )
<b>512 GB</b>	29,127	1,165 ( ~19 min )	242 ( ~4 min )
<b>1 TB</b>	58,254	2,330 ( ~38 min )	485 ( ~8 min )
<b>2 TB</b>	116,508	4,660 ( ~77 min )	970 ( ~16 min )
<b>4 TB</b>	233,016	9,321 ( ~155 min )	1,941 ( ~32 min )

1. In case of Mono16, 1x1 binning and full size.
2. Numbers are rounded down.
3. Depends on storage writing speed and application writing to storage performance. Writing frame rate is sometimes slower than camera capturing speed.

# Storage Size vs. Number of Recorded Images

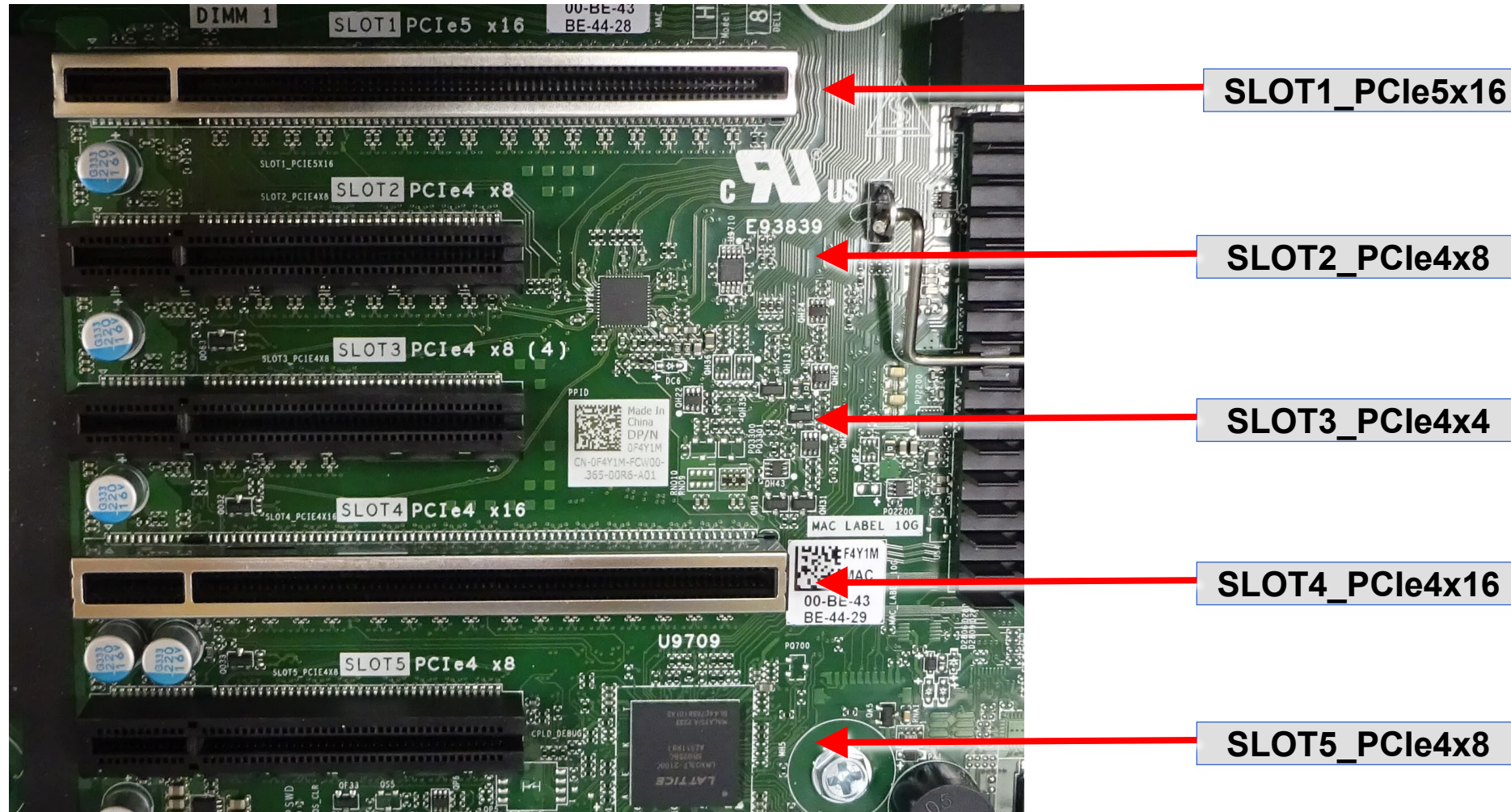
Free space	Number of Recorded Images <sup>(1)</sup>	Time in seconds <sup>(2)</sup> (Approx.)		
		Ultra Quiet (5.42 fps) <sup>(3)</sup>	Standard (23.2 fps) <sup>(3)</sup>	Fast (89.1 fps) <sup>(3)</sup>
<b>8 GB</b>	809	149 ( ~2 min )	34	9
<b>16 GB</b>	1,618	298 ( ~4 min )	69 ( ~1 min )	18
<b>32 GB</b>	3,236	597 ( ~9 min )	139 ( ~2 min )	36
<b>64 GB</b>	6,472	1,194 ( ~19 min )	278 ( ~4 min )	72 ( ~1 min )
<b>128 GB</b>	12,945	2,388 ( ~39 min )	557 ( ~9 min )	145 ( ~2 min )
<b>256 GB</b>	25,890	4,776 ( ~79 min )	1,115 ( ~18 min )	290 ( ~4 min )
<b>512 GB</b>	51,781	9,553 ( ~159 min )	2,231 ( ~37 min )	581 ( ~9 min )
<b>1 TB</b>	103,563	19,107 ( ~318 min )	4,463 ( ~74 min )	1,162 ( ~19 min )

1. In case of Mono16, 1x1 binning and full size.

2. Numbers are rounded down.

3. Depends on storage writing speed and application writing to storage performance. Writing frame rate is sometimes slower than camera capturing speed.

# Dell Precision™ 5860 Tower Workstation Slot Configuration



[www.hamamatsu.com](http://www.hamamatsu.com)