Adobe Premiere Pro Performance Comparison to M2 Pro Mac mini

		27" iMac (2017) Montery 12.1	MacBook Pro (M1 Pro) Ventura 13.2.1	Mac mini (2023) Ventura 13.2.1	Improvement over 2017 iMac	Improvement over M1 Pro MacBook	Notes
CPU Cores		4 core 3.8 GHz i5	10 core M1 Pro	12 Core M2 Pro			
GPU Cores		N/A	16	19			
RAM		40 GB	32 GB	32 GB			
Premiere Editing							
	Render & export 4:00 8K ProRes 422	50:51	10:24	09:34	5.3 X	8.0%	
	Blur & render 4:00 4K ProRes 422	23:46	03:12	02:54	8.2 X	9.5%	
	H.264 4K 720p proxy streams	Plays 5 streams, drops frames at 10	Plays 10 streams, drops frames at 15	Plays 10 streams, drops frames at 15			
	H.264 4K multicam streams	Can't play 5 streams	Plays 5 streams, drops frames at 10	Can't play 5 streams			Don't know why 5 streams wouldn't play
	ProRes 422 4K 720p proxy streams	Plays 5 streams, drops frames at 10	Plays 25 streams, drop frames at 30	Plays 30 streams, drop frames at 35			
	ProRes 422 4K multicam streams	Can't play 5 streams	Plays 20 streams, drop frames at 25	Plays 25 streams, drop frames at 30			
	ProRes 4444 4K 720p proxy streams	Plays 5 streams, drops frames at 10	Plays 25 streams, drops frames at 30	Plays 30 streams, drops at 35			
	ProRes 4444 4K multicam streams	Can't play 5 streams	Plays 20 streams, drops frames at 25	Plays 15 streams, drops at 20			Storage too slow to support 20 streams.
	ProRes 422 8K 1536p proxy streams	Can't play 2 streams	Can't play 2 streams	Plays 2 streams, drops at 4			I suspect proxy frame size.
	ProRes 422 8K multicam streams	Can't play 2 streams	Plays 4 streams, drops frames at 6	Plays 6 streams, drops at 8			Storage too slow to support 8 streams.

TESTING NOTES

All tests used the same: version of Premiere Pro (23.2.0), SSD RAID storage (OWC ThunderBlade), Premiere project and sequences, and media

All computers were running macOS Ventura 13.2.1.

Premiere auto-rendering was turned off

All timed tests were run three times, then results were averaged, except for the 8K export from the 2017 iMac, where the two results matched.

Dropped frames were flagged in Premiere using the dropped frame indicator

Video previews were stored to the internal hard drive

Media was exported as QuickTime ProRes 422 - Matching the source

Exported files were always stored on the Thunderblade for maximum speed on slower systems.

Render and export actual times were always shorter than the estimate.

ProRes hardware encoding and decoding were enabled.

4K blur applied via an adjustment layer

Proxies for H.264 and 4K ProRes 422 and 4444 files were set to "Medium Quality) 1280 x 720 pixels.

Proxies for 8K ProRes 422 files were set to High Quality - 1536x790 pixels. I think this frame size causes playback problems.

Rendering 8K proxies took a LONG time - roughly five minutes each, but I didn't time it.

Need to allow 5-15 seconds to switch between proxy and original media, may be due to cacheing media files. Otherwise dropped frames ensue.

Most multicam projects periodically dropped frames regardless of stream count. Restarting playback, or restarting the app fixed this.

Premiere Speed Test Individual Results

Computer	Test	4K Blur & Render	8K Export	
M1 Macbook	1	03:13	10:27	
	2	03:10	10:23	
	3	03:13	10:21	
	Average	03:12	10:24	
2017 iMac	1	16:25	50:51	Slow speed due to fusion drive?
	2	19:56	50:51	Fusion drive full?
	3	34:57	N/A	Don't know why speeds vary so much
	Average	23:46	50:51	
M2 Pro Mac mini	1	02:54	09:38	
	2	02:53	09:30	
	3	02:54	09:34	
	Average	02:54	09:34	
		Rendering uses all GPU cores.	Exporting only uses some CPU/GPU cores.	