

## Table of Contents

1.	Tiled Model examples	2
2.	Metashape 1.7.5. Phase One iXM-RS100F (40mm). Image size – 100 MP (11608 x 8708); File size (Jpeg) – 90 MB	3
3.	Metashape 1.7.5. New instances: GPU based AMD RADEON V520 and CPU@3.8GHz based (no GPU).	4
4.	Mapping with UAV Batmap II + Sony a6000 camera on a single and cluster configuration. Images – 15,130	5
5.	Corridor mapping with DJI M300rtk and ZenmuseP1 (35mm) on a single and cluster configuration. Images – 10,348	6
6.	Metashape cluster configuration. Images – 1000 / 3450 / 4500	7
7.	Metashape 1.7.3. New GPU instances AMD RADEON PRO V520. Drone area survey: FC6310; Images - 100	8
8.	Metashape 1.7.2. Aircraft survey with PhaseOne 150MP RGB+NIR (4-band), Images - 1023	9
9.	New storage. Check with Metashape 192GB 1.7.2.	10
10.	Metashape 1.7.1. Drone corridor survey: FC6310 (8.8mm); Image size – 16 MP (4864 x 3648); Images - 495	12
11.	Metashape 1.7.1. Drone area survey: FC6310 (8.8mm); Image size – 16 MP (4864 x 3648); Images - 100	13
12.	Metashape 1.7.1. WINGTRA survey: DSC-RX1RM2 (35mm); Image size – 42 MP (7952 x 5304); Images - 930	16
13.	Parallel processing of 10 x Metashapes 192GB with the same Storage	17
14.	Metashape 1.6.5. Drone survey: FC6310 (8.8mm); Image size – 16 MP (4864 x 3648); Images - 100	18
15.	Metashape 1.6.5. WINGTRA survey: DSC-RX1RM2 (35mm); Image size – 42 MP (7952 x 5304); Images - 930	20
16.	Metashape 1.6.5. DJI M600 survey: PhaseOne iXM-50 (35mm); Image size – 50 MP (8280 x 6208); Images – 371	21
17.	Ephemeral disks D for Metashape 16/32/64/128 and 192GB	22
18.	Metashape Instances support using of scripts	23
19.	Metashape 1.6.3 processing productivity benchmarks	24
a.	Drone survey: FC6310 (8.8mm); Image size – 16 MP (4864 x 3648); Images - 100	24
b.	Aircraft survey: PhaseOne iXM-RS150F (70mm); Image size – 150 MP (14204 x 10652); File size (TIF) – 432 MB	26
c.	Aircraft survey: PhaseOne iXM-RS280F (90mm); Image size – 280 MP (20150 x 14118); File size (TIF) – 813 MB	29
d.	Aircraft survey: PhaseOne iXM-RS280F (90mm); Image size – 280 MP (20150 x 14118); File size (TIF) – 813 MB	30

## 1. Tiled Model examples

- Camera – Zenmuse P1 (35mm), Images – 3,865; Flight altitude – 166 m; GSD – 1.9 cm; Area – 3.78 sq. km
- Camera – PhaseOne PAS880, Images – 440; Flight altitude – 1,440 m; GSD – 4.1 cm; Area – 1.94 sq. km
- Camera – PhaseOne iXM-50, Images – 371; Flight altitude – 103 m; GSD – 1.3 cm; Area – 0.04 sq. km

Application	Metashape 192GB	Metashape 192GB	Metashape 192GB
<b>Software</b>	<b>Metashape 1.7.5</b>	<b>Metashape 1.7.3</b>	<b>Metashape 1.5.5</b>
<b>OS</b>	<b>Linux</b>	<b>Linux</b>	<b>Linux</b>
<b>Storage</b>	<b>Storage X Enhanced</b>	<b>Storage X Enhanced</b>	<b>Storage X Enhanced</b>
<b>GPU</b>	<b>4 x TESLA T4</b>	<b>4 x TESLA T4</b>	<b>4 x TESLA T4</b>
<b>vCPU</b>	1 socket 24 CPU @ 2.5GHz 48 vCPU	1 socket 24 CPU @ 2.5GHz 48 vCPU	1 socket 24 CPU @ 2.5GHz 48 vCPU
<b>RAM</b>	192	192	192
<b>Camera</b>	<b>ZenmuseP1</b>	<b>PhaseOne PAS880</b>	<b>PhaseOne iXM-50</b>
<b>Images</b>	<b>3,865</b>	<b>440</b>	<b>371</b>
<b>Match Photos (High)</b>	48m 57s	1h 19m	1h 38m
<b>Align Cameras (High)</b>	15m 4s	5m 11s	2m 9s
<b>Depth Maps (High/Moderate)</b>	4h 42m	7h 27m	7h 38m
<b>Dense Cloud (High/Moderate) without "Point color calculation"</b>	10h 52m		6h 6m
<b>Ground points classification (15/0.25/300)</b>	6h 54m		
<b>Tiled Model (High/Moderate) (Depth/Depth/Dense)</b>	79h	33h	5h 6m
<b>DEM (from Dense Cloud)</b>	39m 46s		
<b>Orthomosaic (DEM) NO "Refine seamlines"</b>	2h 26m		
<b>Time (h)</b>	<b>105.63</b>	<b>41.87</b>	<b>20.50</b>
<b>Price (\$/h/computer)</b>	<b>\$11.356</b>	<b>\$11.356</b>	<b>\$11.356</b>
<b>Total price</b>	<b>\$1,199.53</b>	<b>\$475.48</b>	<b>\$232.80</b>

2. Metashape 1.7.5. Phase One iXM-RS100F (40mm). Image size – 100 MP (11608 x 8708); File size (Jpeg) – 90 MB

Images – 828; Side/Forward overlap - 70%; Flight altitude – 433m; GSD – 4.4 cm; Area - 23.4 sq. km

				30-12-21	30-12-21	30-12-21	30-12-21
	GPU	CPU	Config	Metashape 192GB	Metashape 192GB	Metashape 192GB	Metashape 192GB
OS				Linux	Linux	Linux	Linux
Storage				Storage X 1000 GB Enhanced	Storage D-D Ephemeral 900 GB Enhanced	Storage X 1000 GB Enhanced	Storage X 1000 GB Enhanced
GPU				4 x TESLA T4	4 x TESLA T4	4 x TESLA T4	4 x TESLA T4
Processor type				Intel® Xeon® Cascade Lake 24C	Intel® Xeon® Cascade Lake 24C	Intel® Xeon® Cascade Lake 24C	Intel® Xeon® Cascade Lake 24C
vCPU				1 socket 24 CPU @ 2.5GHz 48 vCPU	1 socket 24 CPU @ 2.5GHz 48 vCPU	1 socket 24 CPU @ 2.5GHz 48 vCPU	1 socket 24 CPU @ 2.5GHz 48 vCPU
RAM				192	192	192	192
<b>Computers</b>				<b>1</b>	<b>1</b>	<b>3</b>	<b>5</b>
<b>Images</b>				<b>828</b>	<b>828</b>	<b>828</b>	<b>828</b>
<b>Match Photos (High)</b>	v	v	Cluster	9m 22s	13m 53s	10m 33s	8m 44s
<b>Align Cameras (High)</b>		v	Cluster	2m 51s	2m 54s	1m 44s	1m 25s
<b>Depth Maps (Medium/Agressive)</b>	v	v	Cluster	37m 44s	37m 3s	17m 19s	15m 1s
<b>Dense Cloud (Medium/Agressive)</b> without "Point color calculation"		v	Cluster	45m 13s	42m 1s	18m 2s	11m 34s
<b>DEM (from Dense Cloud)</b>		v	Cluster	11m 18s	6m 15s	4m 21s	2m 42s
<b>Orthomosaic (DEM)</b> NO "Refine seamlines"		v	Cluster	1h 20m	1h 27m	40m 43s	24m 14s
<b>Time (h)</b>				<b>3.11</b>	<b>3.15</b>	<b>1.55</b>	<b>1.06</b>
<b>Price (\$/h/computer)</b>				<b>\$11.356</b>	<b>\$11.356</b>	<b>\$11.356</b>	<b>\$11.356</b>
<b>Total price</b>				<b>\$35.32</b>	<b>\$35.77</b>	<b>\$52.81</b>	<b>\$60.19</b>
<b>Optimization parametrs</b>		v	Single	4s	4s	4s	4s
<b>Ground classification</b>		v	Single	25m	25m	25m	25m
<b>Export orthophoto tiles</b>		v	Single	35m	35m	35m	35m

3. Metashape 1.7.5. New instances: GPU based AMD RADEON V520 and CPU@3.8GHz based (no GPU).

Drone area survey: FC6310; Images – 100;

File size (JPG) – 7.5 MB; Side/Forward overlap - 70%; Flight altitude – 300m; GSD – 8 cm; Area - 1.35 sq. km

			19-12-21	19-12-21	19-12-21	19-12-21	20-12-21	24-12-21
	GPU	CPU	Metashape 16GB	Metashape 64GB	Metashape 128GB	Metashape 256GB	Metashape 192GB	Metashape 512GB
OS			Windows 2019	Windows 2019	Windows 2019	Windows 2019	Linux	Linux
Storage			Storage X STANDARD	Storage X STANDARD	Storage X STANDARD	Storage X STANDARD	Storage X STANDARD	Storage X STANDARD
GPU			1 x RADEON V520	1 x RADEON V520	2 x RADEON V520	4 x RADEON V520	No GPU	No GPU
Processor type			AMD EPYC 7R32	AMD EPYC 7R32	AMD EPYC 7R32	AMD EPYC 7R32	Intel Xeon Scalable Cascade Lake	Intel Xeon Platinum 8259CL
Processor configuration			1 socket 4vCPU@2.8GHz	1 socket 16vCPU@2.8GHz	1 socket 32vCPU@2.8GHz	1 socket 64vCPU@2.8GHz	1 socket 48vCPU@3.8GHz	1 socket 64vCPU@2.5GHz
RAM			16	64	128	256	192	512
Match Photos (Highest)	v	v	2m 1s	2m 6s	1m 20s	1m 3s	2m 21s	2m 42s
Align Cameras		v	44s	17s	14s	10s	10s	13s
Depth Maps (Ultra High, Aggressive)	v	v	36m 59s	28m 41s	15m 12s	9m 4s	4h 10m	4h 17m
Dense Cloud		v	1h 32m	31m 37s	23m 5s	20m 33s	16m 51s	19m 44s
DEM (from Dense cloud)		v	3m 38s	2m 18s	2m 2s	2m 0s	1m 29s	1m 52s
Orthomosaic (from DEM)		v	8m 1s	4m 8s	3m 40s	3m 42s	3m 25s	4m 18s
Price (\$/h)			\$2.814	\$4.770	\$7.085	\$11.715	\$11.828	\$11.819
Total time (h)			2.39	1.15	0.76	0.61		
Total time (h,m)			2h 23m	1h 9m	46m	36m		
Total price			\$6.73	\$5.49	\$5.38	\$7.15	\$0.00	\$0.00
Tiled model (from Dense cloud, Ultra High/High)	v	v				4h 59m		
Tiled model (from Depth Maps, Ultra High/High)	v	v				2h 38m		

Comments:

CPU based images recommended to use for the steps that are not requiring GPU processing. It is also good for use in a cluster configuration for the step of orthophoto processing for very large projects with very large image size while a lot of RAM is required for the processing.

#### 4. Mapping with UAV Batmap II + Sony a6000 camera on a single and cluster configuration. Images – 15,130

Area – 40.6 sq.km, Number of images – 15,130

Frame size – 24MP (6000 x 4000), Image file type – JPEG, Image file size – 20 Mb

Forward/Side overlap - 80%/80%, GSD – 4.2 cm

	GPU	CPU	Metashape 192GB	Metashape 192GB	Metashape 256GB
OS			Windows 2019	Linux	Windows 2019
Storage			Storage X 1000 GB Standard	Storage X 2000 GB Enhanced	Storage X 2000 GB Enhanced
GPU			4 x TESLA T4	4 x TESLA T4	4 x Radeon V520
Processor type			Intel® Xeon® Cascade Lake 24C	Intel® Xeon® Cascade Lake 24C	Intel® Xeon® Cascade Lake 24C
vCPU			1 socket 24 CPU @ 2.5GHz 48 vCPU	1 socket 24 CPU @ 2.5GHz 48 vCPU	2 socket 32 CPU @ 2.8GHz 64 vCPU
RAM			192	192	256
Computers			1	1	5
Images			15,130	15,130	15,130
Match Photos (High)	v		9h 53m	7h 33m	2h 36m
Align Cameras (High)		v	1h 51m	1h 29m	54m
Optimiazion parametrs		v	3 m	3m	3m
Depth Maps (Medium/Agressive)	v		4h 36m	2h 46m	2h 14m
Dense Cloud (Medium/Agressive) without "Point color calculation"		v	11h 25m	4h 23m	1h 26m
DEM (from Dense Cloud)		v	44m	31m	21m
Orthomosaic (DEM) NO "Refine seamlines"		v	5h 14m	3h 28m	1h 19m
<b>Time (h)</b>			<b>33.77</b>	<b>20.22</b>	<b>8.88</b>
<b>Price (\$/h/computer)</b>			<b>\$11.648</b>	<b>\$11.356</b>	<b>\$11.908</b>
<b>Total price</b>			<b>\$393.35</b>	<b>\$229.62</b>	<b>\$528.72</b>

5. Corridor mapping with DJI M300rtk and ZenmuseP1 (35mm) on a single and cluster configuration.  
Images – 10,348

Corridor mapping length – 30 km; Number of images – 10,348

Frame size – 45MP (8192 x 5460); Image file type – JPEG; Image file size – 20 Mb

Forward/Side overlap - 75%/75%; GSD – 1.65 cm.

	GPU	CPU	Metashape 192GB	Metashape 192GB	Metashape 192GB	Metashape 192GB
OS			Windows 2019	Linux	Windows 2019	Linux
Storage			Storage EBS 2000 GB Enhanced	Storage EBS 2000 GB Enhanced	Storage EBS 2000 GB Enhanced	Storage EBS 2000 GB Enhanced
GPU			4 x TESLA T4	4 x TESLA T4	4 x TESLA T4	4 x TESLA T4
Processor type			Intel® Xeon® Cascade Lake 24C	Intel® Xeon® Cascade Lake 24C	Intel® Xeon® Cascade Lake 24C	Intel® Xeon® Cascade Lake 24C
vCPU			1 socket 24 CPU @ 2.5GHz 48 vCPU	1 socket 24 CPU @ 2.5GHz 48 vCPU	1 socket 24 CPU @ 2.5GHz 48 vCPU	1 socket 24 CPU @ 2.5GHz 48 vCPU
RAM			192	192	192	192
Computers			1	1	5	5
Images			10,348	10,348	10,348	10,348
Match Photos (High)	v		4h 23m	3h 46m	1h 32m	1h 20m
Align Cameras (High)		v	51m	39m	34m	19m
Depth Maps (Medium/Agressive)	v		5h 36m	3h 24m	2h 1m	2h 11m
Dense Cloud (Medium/Agressive) without "Point color calculation"		v	12h 6m	4h 33m	2h 41m	1h 9m
DEM (from Dense Cloud)		v	2h 22m	1h 10m	32m	16m
Orthomosaic (DEM) NO "Refine seamlines"		v	11h 59m	5h 58m	4h 46m	2h 10m
Time (h)			37.28	19.50	12.10	7.42
Price (\$/h/computer)			\$11.648	\$11.356	\$11.648	\$11.356
Total price			\$434.24	\$221.44	\$704.70	\$421.31

## 6. Metashape cluster configuration. Images – 1000 / 3450 / 4500

Blocks of images – 1000 / 3450 / 4500;  
 Image type – PhaseOne 150MP 4-band RGB+NIR;  
 Image file size – 600 MB;  
 Forward/Side overlap - 80%/50%;  
 GSD – 4.6 cm.

		Single computer				Cluster of computers (on-demand)						
		Win 2019	Linux	Win 2019	Win 2019	Linux						
Application		Metashape 192GB		Metashape 256GB		Metashape 192GB						
Number of computers in a cluster		1	1	1	1	5	10	10	6	5	4	2
Storage (TB)		2	2	10	2 x 1.2	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited
Images		1,023	1,023	1,000	1,000	1,000	4,500	3,450	3,450	3,450	3,450	3,450
Match Photos	4.6 cm/pix	55m 45s	56m 41s	1h 12m	58m 38s	14m 12s	26m 18s	34m 19s	31m 28s	37m 33s	47m 18s	57m 55s
Align Cameras	4.6 cm/pix	5m 27s	5m 5s	3m 33s	3m 21s	1m 17s	7m 37s	5m 44s	7m 8s	7m 5s	8m 18s	10m 47s
Depth Maps	74 cm/pix	2h 22m	1h 43m	2h 7m	25m 50s	27m 0s	44m 40s	1h 15m	1h 33m	1h 48m	2h 17m	4h 2m
Dense Cloud	74 cm/pix	10m 45s	4m 56s	9m 15s	9m 6s	1m 27s	3m 37s	3m 6s	4m 38s	5m 20s	6m 29s	11m 39s
Classify ground points	15/0.25/100	2m 24s	1m 32s	3m 9s	3m 15s	2m 45s	12m 59s	9m 35s	9m 55s	10m 22s	10m 35s	7m 16s
DEM (from Dense Cloud)	74 cm/pix	1m 21s	58s	1m 25s	1m 22s	41s	1m 2s	1m 3s	1m 34s	1m 38s	2m 31s	3m 20s
Color adjustment		25m 0s	25m 0s	25m 0s	18m 25s	25m 16s	1h 57m	1h 31m	1h 28m	1h 30m	1h 30m	1h 30m
Orthomosaic (DEM)	4.6 cm/pix	5h 5m	4h 3m	4h 50m	3h 23m	1h 22m	2h 13m	2h 36m	2h 37m	2h 50m	3h 32m	6h 26m
Procissing price (\$/h)		\$11.648	\$11.356	\$11.908	\$11.908	\$11.356	\$11.356	\$11.356	\$11.356	\$11.356	\$11.356	\$11.356
Fast storage price (\$/h)		\$4.040	\$4.040	\$6.140	\$4.040	\$6.140	\$6.140	\$6.140	\$6.140	\$6.140	\$6.140	\$6.140
Total time (h)		10.38	8.59	10.11	8.83	3.83	5.77	6.26	6.55	7.17	8.57	13.48
Total price		\$162.84	\$132.25	\$182.47	\$140.82	\$240.98	\$690.67	\$749.32	\$486.51	\$451.14	\$441.90	\$388.92
Price per 100 image		\$15.92	\$12.93	\$18.25	\$14.08	\$24.10	\$15.35	\$21.72	\$14.10	\$13.08	\$12.81	\$11.27
Processing speed (image/h)		99	119	99	113	261	780	551	527	481	403	256

7. Metashape 1.7.3. New GPU instances AMD RADEON PRO V520. Drone area survey: FC6310;  
Images - 100

File size (JPG) – 7.5 MB; Side/Forward overlap - 70%; Flight altitude – 320m; GSD – 8 cm; Area - 1.35 sq. km

			30-06-21	30-06-21	30-06-21
	GPU	CPU	Metashape 64GB	Metashape 128GB	Metashape 256GB
OS			Windows 2019	Windows 2019	Windows 2019
Storage			Storage X STANDARD	Storage X STANDARD	Storage X STANDARD
GPU			1 x RADEON V520	2 x RADEON V520	4 x RADEON V520
Processor type			AMD EPYC 7R32	AMD EPYC 7R32	AMD EPYC 7R32
Processor configuration			1 socket 8 CPU@2.80GHz 16vCPU	1 socket 16 CPU@2.80GHz 32vCPU	1 socket 32 CPU@2.80GHz 64vCPU
RAM			64	128	256
Match Photos (Highest)	v		2m 2s	1m 20s	1m 1s
Align Cameras		v	27s	21s	19s
Depth Maps (Ultra High, Aggressive)	v		24m 18s	12m 43s	7m 18s
Dense Cloud		v	28m 5s	20m 5s	17m 59s
DEM (from Dense cloud)		v	2m 15s	2m 0s	1m 55s
Orthomosaic (from DEM)		v	3m 53s	3m 34s	3m 26s
<b>Price (\$/h)</b>			<b>\$4.384</b>	<b>\$6.892</b>	<b>\$11.908</b>
<b>Total time (h)</b>			<b>1.02</b>	<b>0.67</b>	<b>0.53</b>
<b>Total time (h,m)</b>			<b>1h 1m</b>	<b>40m</b>	<b>32m</b>
<b>Total price</b>			<b>\$4.47</b>	<b>\$4.62</b>	<b>\$6.31</b>



## 8. Metashape 1.7.2. Aircraft survey with PhaseOne 150MP RGB+NIR (4-band), Images - 1023

Strips – 15; Number of images - 1023

Forward overlap - 80%; Side overlap – 50%; Flight altitude – 890 m; GSD – 4.6 cm; Area – 36.4 sq.km.

Orthophoto RGB+NIR (4-band) GSD = 4.6 cm

Image size – 150 MP (14204 x 10652)

Image type – RGB+NIR (4-band)

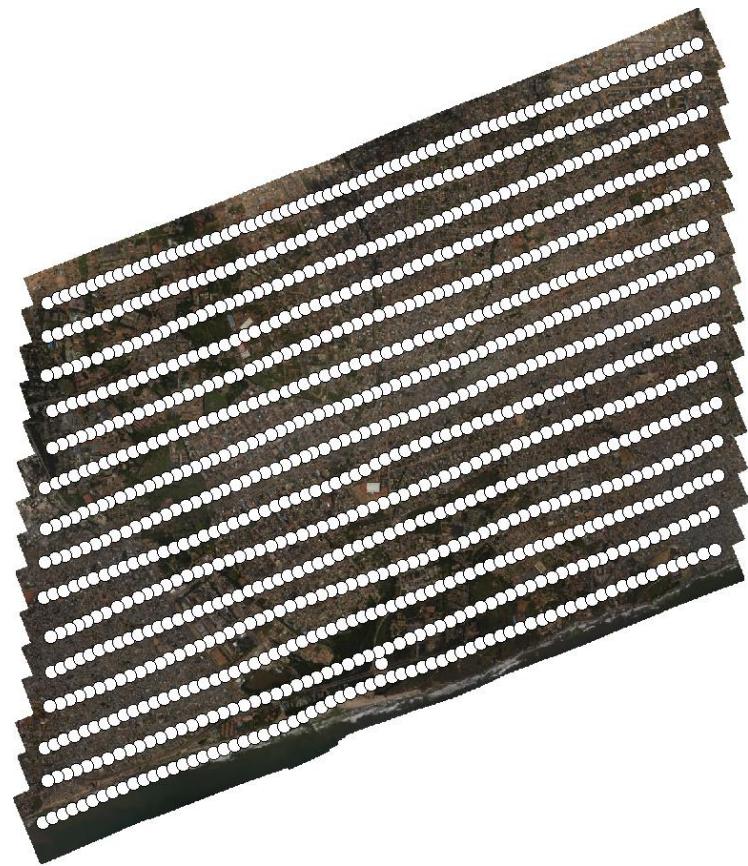
Image file volume (TIFF) – 600 MB

Total image files volume – 576 GB

Metashape project volume – 693 GB

Exported orthophoto volume – 78 GB

OS				Win 2019	Linux	Linux
Metashape 1.7.2				Metashape 192 GB	Metashape 192 GB	Metashape 192 GB
Storage				FAST Storage X	FAST Storage X	Local D
Storage volume (GB)				2000	2000	900
	GPU	CPU	Parameters			
Copy of images from Storage X to local disk D						40m
Generating masks		v		1m 20s	1m 20s	1m 20s
Match Photos	v		4.6 cm/pix	55m 45s	56m 41s	14m 46s
Align Cameras		v	4.6 cm/pix	5m 27s	5m 5s	6m 50s
Depth Maps	v		74 cm/pix	2h 22m	1h 43m	22m 35s
Dense Cloud		v	74 cm/pix	10m 45s	4m 56s	4m 20s
Classify ground points		v	15/0.25/100	2m 24s	1m 32s	1m 33s
DEM (from Dense Cloud)		v	74 cm/pix	1m 21s	58s	59s
Color adjustment		v		12m 0s	12m 0s	11m 58s
Orthomosaic (DEM)		v	4.6 cm/pix	5h 5m	4h 3m	3h 28m
Orthomosaic Export (TIFF)		v	56 tiles of size 1000 m x 1000 m	1h 16m	1h 6m	1h 7m
Procissing price (\$/h)				\$11.648	\$11.356	\$11.356
Fast storage price (\$/h)				\$3.420	\$3.420	\$3.420
Total time (h)				10.00	8.24	7.32
Total time (h,m)				10h 0m	8h 14m	7h 19m
Total price				\$150.68	\$121.75	\$108.16



## 9. New storage. Check with Metashape 192GB 1.7.2.

The two older types of storage, Normal and Enhanced, have been discontinued. Three new types of storage have been implemented: Standard, Enhanced and Fast.

Storage type is related to both data transfer (upload/download) and overall processing speed. Data transfer speed, though, is also limited by your internet speed. If it's less than 30Mbps, Enhanced or Fast types won't give you any benefit in this regard.

Processing speed depends on the software itself, computer and network configuration, and the size of individual files. After thorough testing with Metashape 192GB and with different data sets the following recommendations can be made:

Individual file size	Storage type
Less than 100MB	Standard
Between 100 and 200MB	Enhanced
More than 200MB	Fast

The following image data sets were used in the testing:

Image size (MP)	17	17	42	150	280
File size (MB)	7	7	18	432	813
Number of images	100	500	930	100	108
Image file format	JPEG	JPEG	JPEG	TIFF	TIFF

OS			Win 2019	Linux	Win 2019	Linux	Win 2019	Linux	Win 2019	Linux
Storage			<b>STANDARD</b>	<b>STANDARD</b>	<b>STANDARD</b>	<b>STANDARD</b>	<b>ENHANCED</b>	<b>ENHANCED</b>	<b>ENHANCED</b>	<b>ENHANCED</b>
Image size (MP)			17	17	42	42	17	17	17	17
File size (MB)			7	7	18	18	7	7	7	7
Number of images			100	100	930	930	100	100	500	500
Image file format			JPEG	JPEG	JPEG	JPEG	JPEG	JPEG	JPEG	JPEG
Match Photos	v	High	32s	43s	10m 17s	9m 52s	34s	31s	4m 19s	4m 21s
Align Cameras	v	High	22s	16s	4m 43s	3m 14s	22s	16s	2m 23s	1m 43s
Depth Maps	v	Low	20s	18s	10m 40s	9m 34s	25s	18s	2m 58s	2m 33s
Dense Cloud	v	Low	26s	12s	10m 26s	4m 44s	9s	12s	2m 51s	1m 14s
Classify ground points	v	v	15s	6s	8m 0s	4m 15s	10s	7s	42s	24s
DEM (from Dense Cloud)	v		4s	3s	1m 12s	55s	4s	3s	20s	16s
Orthomosaic (DEM)	v	High	2m 8s	1m 31s	41m 7s	31m 38s	2m 5s	1m 32s	10m 0s	7m 25s
Price (\$/h)			\$11.648	\$11.356	\$11.648	\$11.356	\$11.648	\$11.356	\$11.648	\$11.356
Total time (h)			0.07	0.05	1.44	1.07	0.06	0.05	0.39	0.30
Total time (h,m)			4m	3m	1h 26m	1h 4m	4m	3m	23m	18m
Total price			\$0.82	\$0.57	\$16.77	\$12.15	\$0.70	\$0.57	\$4.54	\$3.41
OS			Win 2019	Linux	Win 2019	Linux	Win 2019	Linux	Win 2019	Linux
Storage			<b>ENHANCED</b>	<b>ENHANCED</b>	<b>ENHANCED</b>	<b>ENHANCED</b>	<b>FAST</b>	<b>FAST</b>	<b>FAST</b>	<b>FAST</b>
Image size (MP)			42	42	150	150	150	150	280	280
File size (MB)			18	18	432	432	432	432	813	813
Number of images			930	930	100	100	100	100	108	108
Image file format			JPEG	JPEG	TIFF	TIFF	TIFF	TIFF	TIFF	TIFF
Match Photos	v	High	9m 58s	10m 24s	4m 49s	4m 13s	5m 36s	3m 5s	6m 34s	6m 40s
Align Cameras	v	High	4m 38s	3m 14s	22s	20s	22s	22s	19s	22s
Depth Maps	v	Low	10m 48s	9m 43s	6m 10s	5m 29s	6m 28s	2m 5s	9m 52s	10m 9s
Dense Cloud	v	Low	10m 27s	4m 36s	3m 30s	1m 52s	3m 33s	1m 51s	7m 13s	4m 31s
Classify ground points	v	v	8m 3s	4m 54s	1m 43s	1m 0s	1m 38s	1m 2s	1m 49s	1m 14s
DEM (from Dense Cloud)	v		1m 12s	59s	20s	15s	20s	15s	30s	22s
Orthomosaic (DEM)	v	High	41m 21s	32m 9s	14m 52s	12m 22s	12m 10s	9m 32s	29m 9s	23m 17s
Price (\$/h)			\$11.648	\$11.356	\$11.648	\$11.356	\$11.648	\$11.356	\$11.648	\$11.356
Total time (h)			1.44	1.10	0.53	0.43	0.50	0.30	0.92	0.78
Total time (h,m)			1h 26m	1h 6m	32m	26m	30m	18m	55m	47m
Total price			\$16.77	\$12.49	\$6.17	\$4.88	\$5.82	\$3.41	\$10.72	\$8.86

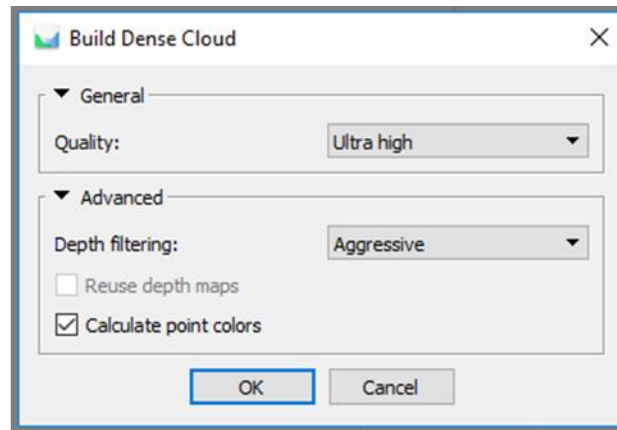
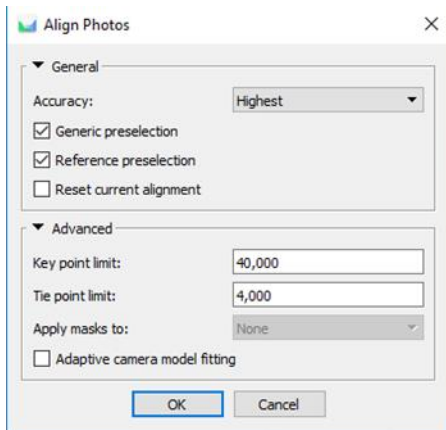
10. Metashape 1.7.1. Drone corridor survey: FC6310 (8.8mm); Image size – 16 MP (4864 x 3648);  
Images - 495

File size (JPG) – 7.5 MB; Flight altitude – 61m; GSD – 1.6 cm; Corridor mapping – 2-4 flight lines. Area - 0.56 sq.km;

	GPU	CPU	01-03-21
			<b>Metashape 192GB</b>
<b>OS</b>			<b>Windows 2019</b>
<b>Storage</b>			<b>Storage X enhanced</b>
GPU			<b>4 x TESLA T4</b>
Processor type			<b>Intel® Xeon® Cascade Lake 24C</b>
vCPU			1 socket 24 CPU @ 2.50GHz 48 vCPU
RAM			192
<b>Match Photos (High)</b>	v		1m 28s
<b>Align Cameras (High)</b>		v	2m 52s
<b>Depth Maps (High/Aggressive)</b>	v		7m 6s
<b>Dense Cloud (High/Aggressive)</b> without "Point color calculation"		v	50m 37s
<b>DEM (from Dense Cloud)</b>		v	7m 50s
<b>Orthomosaic (DEM)</b> NO "Refine seamlines"		v	24m 58s
<b>Price (\$/h)</b>			<b>\$11.648</b>
<b>Total time (h)</b>			<b>1.58</b>
<b>Total time (h,m)</b>			<b>1h 35m</b>
<b>Total price</b>			<b>\$18.40</b>

## 11. Metashape 1.7.1. Drone area survey: FC6310 (8.8mm); Image size – 16 MP (4864 x 3648); Images - 100

File size (JPG) – 7.5 MB; Side/Forward overlap - 70%; Flight altitude – 320m; GSD – 8 cm; Area - 1.35 sq.km;



			08-02-21	08-02-21	08-02-21	08-02-21	08-02-21	08-02-21
	GPU	CPU	Metashape 16GB	Metashape 16GB	Metashape 32GB	Metashape 32GB	Metashape 64GB	Metashape 64GB
OS			Windows 2019	Linux	Windows 2019	Linux	Windows 2019	Linux
Storage			Storage X enhanced	Storage X enhanced	Storage X enhanced	Storage X enhanced	Storage X enhanced	Storage X enhanced
GPU			1 x TESLA T4	1 x TESLA T4	1 x TESLA T4	1 x TESLA T4	1 x TESLA T4	1 x TESLA T4
Processor type			Intel® Xeon® Platinum 8259CL	Intel® Xeon® Platinum 8259CL	Intel® Xeon® Platinum 8259CL	Intel® Xeon® Platinum 8259CL	Intel® Xeon® Platinum 8259CL	Intel® Xeon® Platinum 8259CL
Processor configuration			1 socket 2 CPU 2.50GHz 4vCPU	1 socket 2 CPU 2.50GHz 4vCPU	1 socket 4 CPU 2.50GHz 8vCPU	1 socket 4 CPU 2.50GHz 8vCPU	1 socket 4 CPU 2.50GHz 8vCPU	1 socket 4 CPU 2.50GHz 8vCPU
RAM			16	16	32	32	64	64
Match Photos (Highest)	v		1m 34s	1m 21s	1m 32s	1m 26s	1m 30s	1m 27s
Align Cameras		v	1m 26s	1m 15s	53s	43s	36s	28s
Depth Maps (Ultra High, Aggressive)	v		34m 56s	32m 2s	26m 12s	23m 36s	20m 49s	19m 36s
Dense Cloud		v	1h 32m	1h 15m	50m 24s	40m 43s	31m 47s	25m 5s
DEM (from Dense cloud)		v	4m 32s	3m 47s	3m 4s	2m 35s	2m 33s	2m 4s
Orthomosaic (from DEM)		v	9m 47s	7m 51s	6m 0s	4m 49s	4m 36s	3m 56s
Price (\$/h)			\$2.829	\$2.798	\$3.639	\$3.501	\$4.816	\$4.698
Total time (h)			2.40	2.02	1.47	1.23	1.03	0.79
Total time (h,m)			2h 24m	2h 1m	1h 28m	1h 14m	1h 2m	47m
Total price			\$6.79	\$5.65	\$5.35	\$4.31	\$4.96	\$3.71
			08-02-21	08-02-21	08-02-21	08-02-21		
	GPU	CPU	Metashape 128GB	Metashape 128GB	Metashape 192GB	Metashape 192GB		
OS			Windows 2019	Linux	Windows 2019	Linux		
Storage			Storage X enhanced	Storage X enhanced	Storage X enhanced	Storage X enhanced		
GPU			1 x TESLA T4	1 x TESLA T4	4 x TESLA T4	4 x TESLA T4		
Processor type			Intel® Xeon® Platinum 8259CL	Intel® Xeon® Platinum 8259CL	Intel® Xeon® Cascade Lake 24C	Intel® Xeon® Cascade Lake 24C		
Processor configuration			1 socket 4 CPU 2.50GHz 8vCPU	1 socket 4 CPU 2.50GHz 8vCPU	1 socket 24 CPU@2.50GHz 48 vCPU	1 socket 24 CPU@2.50GHz 48 vCPU		
RAM			128	128	192	192		
Match Photos (Highest)	v		1m 28s	1m 27s	1m 2s	1m 3s		
Align Cameras		v	28s	19s	25s	16s		
Depth Maps (Ultra High, Aggressive)	v		18m 16s	18m 41s	5m 35s	4m 59		
Dense Cloud		v	23m 35s	17m 19s	22m 59s	14m 59s		
DEM (from Dense cloud)		v	2m 14s	1m 50s	2m 13s	1m 42s		
Orthomosaic (from DEM)		v	4m 11s	3m 43s	4m 10s	3m 31s		
Price (\$/h)			\$7.045	\$6.698	\$11.648	\$11.356		
Total time (h)			0.84	0.72	0.61	0.44		
Total time (h,m)			50m	43m	37m	26m		
Total price			\$5.92	\$4.82	\$7.11	\$5.00		
Build Tiled (from Depth Maps, Ultra High/High)	v	v			2h 9m			

			08-02-21	08-02-21	08-02-21	08-02-21	08-02-21
	GPU	CPU	Metashape 122GB	Metashape 244GB	Metashape 244GB	Metashape 488GB	Metashape 488GB
OS			Windows 2019	Windows 2019	Linux	Windows 2019	Linux
Storage			Storage X enhanced	Storage X enhanced	Storage X enhanced	Storage X enhanced	Storage X enhanced
GPU			1 x TESLA M60	2 x TESLA M60	2 x TESLA M60	4 x TESLA M60	4 x TESLA M60
Processor type			Intel® Xeon® E5-2686 v4	Intel® Xeon® E5-2686 v4	Intel® Xeon® E5-2686 v4	Intel® Xeon® E5-2686 v4	Intel® Xeon® E5-2686 v4
vCPU			1 socket 8 CPU 2.30GHz 16vCPU	1 socket 16 CPU@2.30GHz 32 vCPU	1 socket 16 CPU@2.30GHz 32 vCPU	2 socket 32 CPU@2.30GHz 64 vCPU	2 socket 32 CPU@2.30GHz 64 vCPU
RAM			122	244	244	488	488
Match Photos (Highest)	v		2m 39s	1m 45s	1m 37s	1m 23s	1m 19s
Align Cameras		v	42s	34s	21s	34s	23s
Depth Maps (Ultra High, Aggressive)	v		39m 5s	19m 13s	18m 11s	9m 56s	9m 29s
Dense Cloud		v	37m 5s	29m 25s	19m 43s	31m 57s	21m 29s
DEM (from Dense cloud)		v	2m 46s	2m 34s	1m 58s	2m 34s	1m 53s
Orthomosaic (from DEM)		v	5m 17s	5m 3s	4m 10s	5m 42s	4m 7s
<b>Price (\$/h)</b>			<b>\$4.697</b>	<b>\$6.988</b>	<b>\$6.794</b>	<b>\$11.569</b>	<b>\$11.478</b>
<b>Total time (h)</b>			<b>1.46</b>	<b>0.98</b>	<b>0.77</b>	<b>0.87</b>	<b>0.64</b>
<b>Total time (h,m)</b>			<b>1h 28m</b>	<b>59m</b>	<b>46m</b>	<b>52m</b>	<b>38m</b>
<b>Total price</b>			<b>\$6.86</b>	<b>\$6.85</b>	<b>\$5.23</b>	<b>\$10.07</b>	<b>\$7.35</b>
Build Tiled (from Depth Maps, Ultra High/High)	v	v				2h 46m	

## 12. Metashape 1.7.1. WINGTRA survey: DSC-RX1RM2 (35mm); Image size – 42 MP (7952 x 5304); Images - 930

File size (JPG) – 16 MB; Flight altitude – 76m; GSD – 1 cm; Area - 0.36 sq.km;

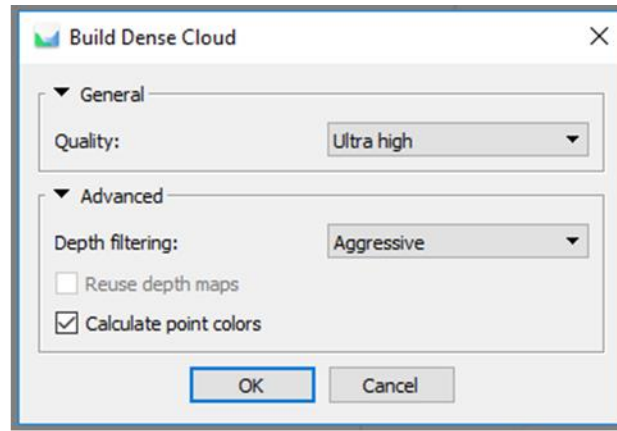
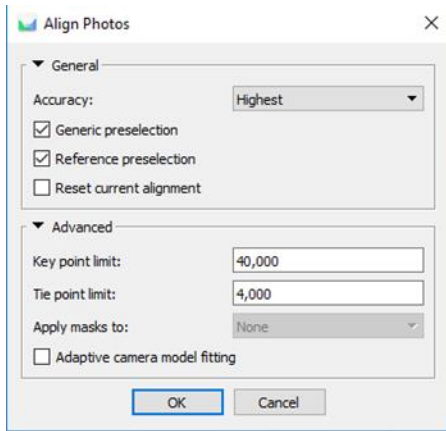
			08-02-21	08-02-21	08-02-21	08-02-21	08-02-21	08-02-21
	GPU	CPU	Metashape 488GB	Metashape 488GB	Metashape 192GB	Metashape 192GB	Metashape 192GB	Metashape 192GB
OS			Windows 2019	Linux	Windows 2019	Windows 2019	Linux	Linux
Storage			Storage X enhanced	Storage X enhanced	Storage X enhanced	Ephemeral D	Storage X enhanced	Ephemeral D
GPU			4 x TESLA M60	4 x TESLA M60	4 x TESLA T4	4 x TESLA T4	4 x TESLA T4	4 x TESLA T4
Processor type			Intel® Xeon® E5-2686 v4	Intel® Xeon® E5-2686 v4	Intel® Xeon® Cascade Lake 24C	Intel® Xeon® Cascade Lake 24C	Intel® Xeon® Cascade Lake 24C	Intel® Xeon® Cascade Lake 24C
vCPU			2 socket 32 CPU@2.30GHz 64 vCPU	2 socket 32 CPU@2.30GHz 64 vCPU	1 socket 24 CPU @ 2.50GHz 48 vCPU	1 socket 24 CPU @ 2.50GHz 48 vCPU	1 socket 24 CPU @ 2.50GHz 48 vCPU	1 socket 24 CPU @ 2.50GHz 48 vCPU
RAM			488	488	192	192	192	192
Match Photos (High)	v		8m 35s	8m 49s	6m 36s	6m 28s	6m 55s	5m 57s
Align Cameras (High)		v	5m 23s	4m 0s	4m 7s	4m 10s	2m 57s	3m 0s
Depth Maps (High/Mild)	v		1h 44m	1h 40m	1h 7m	1h 7m	1h 1m	1h 1m
Dense Cloud (High/Mild) without "Point color calculation"		v	4h 40m	2h 1m	2h 49m	2h 56m	1h 31m	1h 35m
DEM (from Dense Cloud)		v	11m 22s	8m 27s	9m 37s	8m 58s	7m 27s	6m 42s
Orthomosaic (DEM) NO "Refine seamlines"		v	1h 12m	54m 42s	56m 47s	52m 56s	44m 36s	37m 42s
Price (\$/h)			\$11.569	\$11.478	\$11.648	\$11.648	\$11.356	\$11.356
Total time (h)			8.02	4.95	5.22	5.26	3.57	3.49
Total time (h,m)			8h 1m	4h 57m	5h 13m	5h 16m	3h 34m	3h 29m
Total price			\$92.78	\$56.82	\$60.80	\$61.27	\$40.54	\$39.63
Tiled Model (from Depth maps, High/Mild, High)	v	v	14h 41m	11h 4m	12h 24m	11h 47m	9h 52m	7h 46m



### 13. Parallel processing of 10 x Metashapes 192GB with the same Storage

Drone survey: FC6310 (8.8mm); Image size – 16 MP (4864 x 3648); Images - 100

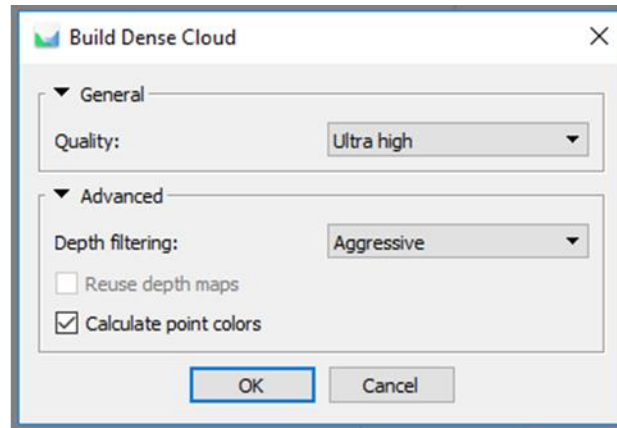
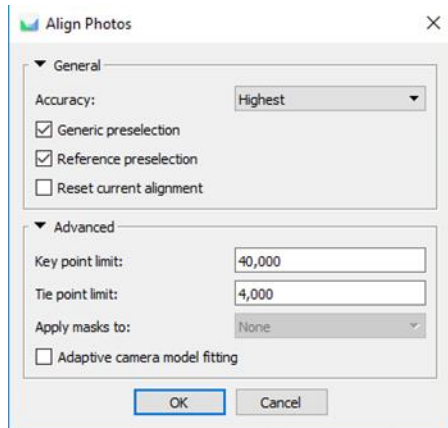
File size (JPG) – 7.5 MB; Side/Forward overlap - 70%; Flight altitude – 320m; GSD – 8 cm; Area - 1.35 sq.km;



			Single project	10 parallel running projects on the same storage									
			1	1	2	3	4	5	6	7	8	9	10
	GPU	CPU	Metashape 192GB	Metashape 192GB	Metashape 192GB	Metashape 192GB	Metashape 192GB	Metashape 192GB	Metashape 192GB	Metashape 192GB	Metashape 192GB	Metashape 192GB	Metashape 192GB
OS			Windows 2019	Windows 2019	Windows 2019	Windows 2019	Windows 2019	Windows 2019	Windows 2019	Windows 2019	Windows 2019	Windows 2019	Windows 2019
Storage			Storage 750GB enhanced	Storage 750GB enhanced	Storage 750GB enhanced	Storage 750GB enhanced	Storage 750GB enhanced	Storage 750GB enhanced	Storage 750GB enhanced	Storage 750GB enhanced	Storage 750GB enhanced	Storage 750GB enhanced	Storage 750GB enhanced
GPU			4 x TESLA T4	4 x TESLA T4	4 x TESLA T4	4 x TESLA T4	4 x TESLA T4	4 x TESLA T4	4 x TESLA T4	4 x TESLA T4	4 x TESLA T4	4 x TESLA T4	4 x TESLA T4
Processor type			Intel® Xeon® Cascade Lake 24C	Intel® Xeon® Cascade Lake 24C	Intel® Xeon® Cascade Lake 24C	Intel® Xeon® Cascade Lake 24C	Intel® Xeon® Cascade Lake 24C	Intel® Xeon® Cascade Lake 24C	Intel® Xeon® Cascade Lake 24C	Intel® Xeon® Cascade Lake 24C	Intel® Xeon® Cascade Lake 24C	Intel® Xeon® Cascade Lake 24C	Intel® Xeon® Cascade Lake 24C
vCPU			1 socket 24 CPU@2.50GHz 48 vCPU	1 socket 24 CPU@2.50GHz 48 vCPU	1 socket 24 CPU@2.50GHz 48 vCPU	1 socket 24 CPU@2.50GHz 48 vCPU	1 socket 24 CPU@2.50GHz 48 vCPU	1 socket 24 CPU@2.50GHz 48 vCPU	1 socket 24 CPU@2.50GHz 48 vCPU	1 socket 24 CPU@2.50GHz 48 vCPU	1 socket 24 CPU@2.50GHz 48 vCPU	1 socket 24 CPU@2.50GHz 48 vCPU	1 socket 24 CPU@2.50GHz 48 vCPU
RAM			192	192	192	192	192	192	192	192	192	192	192
Match Photos (Highest)	v		1m 1s	36s	38s	37s	37s	37s	37s	37s	37s	36s	42s
Align Cameras (Highest)		v	26s	26s	25s	25s	25s	25s	25s	26s	25s	25s	26s
Depth Maps (Ultra High)	v		9m 23s	8m 50s	8m 44s	8m 52s	9m 24s	9m 10s	8m 47s	8m 51s	9m 7s	9m 5s	8m 43s
Dense Cloud (Ultra High)		v	26m 56s	30m 22s	30m 19s	30m 36s	30m 22s	29m 55s	29m 20s	30m 4s	29m 16s	28m 9s	27m 16s
DEM		v	2m 27s	3m 8s	3m 17s	3m 18s	3m 20s	3m 59s	2m 37s	4m 27s	4m 58s	5m 45s	6m 19s
Orthomosaic		v	3m 51s	4m 42s	4m 38s	4m 42s	4m 42s	4m 16s	4m 44s	4m 47s	4m 40s	4m 43s	4m 28s
<b>Total time (h)</b>			<b>0.73</b>	<b>0.80</b>	<b>0.80</b>	<b>0.81</b>	<b>0.81</b>	<b>0.81</b>	<b>0.77</b>	<b>0.82</b>	<b>0.82</b>	<b>0.81</b>	<b>0.80</b>
<b>Total time (h,m)</b>			<b>44m</b>	<b>48m</b>	<b>48 m</b>	<b>49m</b>	<b>49m</b>	<b>49m</b>	<b>46m</b>	<b>49m</b>	<b>49m</b>	<b>49m</b>	<b>48m</b>
Build Tiled (from Depth Maps, Ultra High/High)	v	v	2h 34m	2h 41m	2h 37m	2h 42s	2h 41m	2h 39m	2h 36s	2h 41m	2h 34s	2h 38m	2h 38m

## 14. Metashape 1.6.5. Drone survey: FC6310 (8.8mm); Image size – 16 MP (4864 x 3648); Images - 100

File size (JPG) – 7.5 MB; Side/Forward overlap - 70%; Flight altitude – 320m; GSD – 8 cm; Area - 1.35 sq.km;



			07-11-20	20-07-20	08-11-20	20-07-20	08-11-20	
	GPU	CPU	Local PC	Metashape 16GB	Metashape 16GB	Metashape 32GB	Metashape 32GB	Metashape 122GB
OS			Windows 10	Windows 2019	Linux	Windows 2019	Linux	Windows 2019
Storage			Local disk	Storage X enhanced	Storage X enhanced	Storage X enhanced	Storage X enhanced	Storage X enhanced
GPU			1 x GeForce GTX 1080	1 x TESLA T4	1 x TESLA T4	1 x TESLA T4	1 x TESLA T4	1 x TESLA M60
Processor type			Intel® Xeon® W-2123	Intel® Xeon® Platinum 8259CL	Intel® Xeon® Platinum 8259CL	Intel® Xeon® Platinum 8259CL	Intel® Xeon® Platinum 8259CL	Intel® Xeon® E5-2686 v4
Processor configuration			1 socket, 4 CPU 3.60GHz 8 vCPU	1 socket 2 CPU 2.50GHz 4vCPU	1 socket 2 CPU 2.50GHz 4vCPU	1 socket 4 CPU 2.50GHz 8vCPU	1 socket 4 CPU 2.50GHz 8vCPU	1 socket 8 CPU 2.30GHz 16vCPU
RAM			16	16	16	32	32	122
Match Photos	v		1m 27s	1m 32s	1m 23s	1m 22s	1m 25s	2m 56s
Align Cameras		v	51s	2m 9s	1m 30s	1m 10s	56s	52s
Depth Maps	v		38m 31s	40m 36s	36m 9s	32m 58s	31m 41s	47m 52s
Dense Cloud		v	54m 58s	1h 55m	1h 35m	1h 2m	50m 58s	45m 38s
DEM		v	2m 47s	4m 34s	3m 53s	3m 20s	2m 53s	3m 2s
Orthomosaic		v	4m 55s	9m 48s	7m 3s	5m 56s	5m 7s	5m 21s
Price (\$/h)				\$2.936	\$2.972	\$3.726	\$4.497	\$4.944
Total time (h)			1.72	2.89	2.42	1.78	1.55	1.76
Total time (h,m)			1h 43m	2h 53m	2h 25m	1h 47m	1h 33m	1h 46m
Total price				\$8.49	\$7.19	\$6.63	\$6.97	\$8.70
			08-11-20	17-07-20	09-11-20	17-07-20	06-11-20	06-11-20
	GPU	CPU	Metashape 244GB	Metashape 244GB	Metashape 488GB	Metashape 488GB	Metashape 192GB	Metashape 192GB
OS			Windows 2019	Linux	Windows 2019	Linux	Windows 2019	Linux
Storage			Storage X enhanced	Storage X enhanced	Storage X enhanced	Storage X enhanced	Storage X enhanced	Storage X enhanced
GPU			2 x TESLA M60	2 x TESLA M60	4 x TESLA M60	4 x TESLA M60	4 x TESLA T4	4 x TESLA T4
Processor type			Intel® Xeon® E5-2686 v4	Intel® Xeon® E5-2686 v4	Intel® Xeon® E5-2686 v4	Intel® Xeon® E5-2686 v4	Intel® Xeon® Cascade Lake 24C	Intel® Xeon® Cascade Lake 24C
vCPU			1 socket 16 CPU@2.30GHz 32 vCPU	1 socket 16 CPU@2.30GHz 32 vCPU	2 socket 32 CPU@2.30GHz 64 vCPU	2 socket 32 CPU@2.30GHz 64 vCPU	1 socket 24 CPU@2.50GHz 48 vCPU	1 socket 24 CPU@2.50GHz 48 vCPU
RAM			244	244	488	488	192	192
Match Photos	v		1m 33s	1m 2s	1m 12s	50s	1m 1s	40s
Align Cameras		v	38s	26s	36s	25s	26s	19s
Depth Maps	v		24m 44s	24m 39s	13m 41s	13m 34s	9m 23s	8m 18s
Dense Cloud		v	34m 34s	24m 10s	36m 33s	24m 59s	26m 56s	18m 11s
DEM		v	2m 57s	2m 14s	2m 38s	2m 10s	2m 27s	1m 51s
Orthomosaic		v	5m 7s	4m 22s	5m 17s	4m 6s	3m 51s	3m 22s
Price (\$/h)			\$6.914	\$7.550	\$11.587	\$12.383	\$11.665	\$12.393
Total time (h)			1.16	0.95	1.00	0.77	0.73	0.54
Total time (h,m)			1h 10m	57m	1h 0m	46m	44m	32m
Total price			\$8.02	\$7.17	\$11.59	\$9.53	\$8.52	\$6.69
Build Mesh (from Depth Maps, Ultra High/High)	v	v					1h 5m	42m 43s
Build Tiled (from Depth Maps, Ultra High/High)	v	v					2h 34m	1h 43m

15. Metashape 1.6.5. WINGTRA survey: DSC-RX1RM2 (35mm); Image size – 42 MP (7952 x 5304);  
Images - 930

File size (JPG) – 16 MB; Flight altitude – 76m; GSD – 1 cm; Area - 0.36 sq.km;

	GPU	CPU	Metashape 244GB	Metashape 244GB	Metashape 488GB	Metashape 488GB	Metashape 192GB	Metashape 192GB	Metashape 192GB	Metashape 192GB
OS			Windows 2019	Linux	Windows 2019	Linux	Windows 2019	Windows 2019	Linux	Linux
Storage			Storage X enhanced	Storage X enhanced	Storage X enhanced	Storage X enhanced	Storage X enhanced	Ephemeral D	Storage X enhanced	Ephemeral D
GPU			2 x TESLA M60	2 x TESLA M60	4 x TESLA M60	4 x TESLA M60	4 x TESLA T4	4 x TESLA T4	4 x TESLA T4	4 x TESLA T4
Processor type			Intel® Xeon® E5-2686 v4	Intel® Xeon® E5-2686 v4	Intel® Xeon® E5-2686 v4	Intel® Xeon® E5-2686 v4	Intel® Xeon® Cascade Lake 24C	Intel® Xeon® Cascade Lake 24C	Intel® Xeon® Cascade Lake 24C	Intel® Xeon® Cascade Lake 24C
vCPU			1 socket 16 CPU@2.30GHz 32 vCPU	1 socket 16 CPU@2.30GHz 32 vCPU	2 socket 32 CPU@2.30GHz 64 vCPU	2 socket 32 CPU@2.30GHz 64 vCPU	1 socket 24 CPU @ 2.50GHz 48 vCPU	1 socket 24 CPU @ 2.50GHz 48 vCPU	1 socket 24 CPU @ 2.50GHz 48 vCPU	1 socket 24 CPU @ 2.50GHz 48 vCPU
RAM			244	244	488	488	192	192	192	192
Match Photos (High)	v		13m 28s	12m 23s	8m 15s	8m 19s	6m 40s	6m 1s	6m 32s	5m 49s
Align Cameras (High)		v	4m 33s	3m 4s	4m 10s	2m 42s	3m 39s	3m 0s	2m 11s	2m 16s
Depth Maps (High/Mild)	v		3h 20m	3h 18m	1h 45m	1h 49m	1h 21m	1h 8m	1h 5m	1h 5m
Dense Cloud (High/Mild) without "Point color calculation"		v	4h 7m	2h 21m	3h 34m	1h 54m	2h 56m	2h 31m	1h 39m	1h 33m
DEM (from Dense Cloud)		v	15m 42s	9m 16s	11m 41s	8m 57s	12m 51s	9m 49s	7m 27s	6m 42s
Orthomosaic (DEM) NO "Refine seamlines"		v	1h 20m	56m 33s	1h 9m	55m 56s	1h 6m	55m 42s	45m 14s	38m 39s
Price (\$/h)			\$6.914	\$7.550	\$11.587	\$12.383	\$11.665	\$11.665	\$12.393	\$12.393
Total time (h)			9.35	7.00	6.87	5.98	5.77	4.89	3.76	3.52
Total time (h,m)			9h 21m	7h 0m	6h 52m	5h 59m	5h 46m	4h 53m	3h 46m	3h 31m
Total price			\$64.65	\$52.85	\$79.60	\$74.05	\$67.31	\$57.04	\$46.60	\$43.62
Mesh (from Depth Maps) Reconstruction (High/Mild)	v	v	8h 35m	6h 50m	6h 19m	6h 30m	6h 40m	5h 6m	3h 24m	2h 50m
Tiled Model (from Depth maps, High/Mild, High)	v	v	20h 7m	15h 30m	17h 44m	14h 33m	16h 38m	13h 43m	9h 59m	9h 13m

16. Metashape 1.6.5. DJI M600 survey: PhaseOne iXM-50 (35mm); Image size – 50 MP (8280 x 6208); Images – 371

File size (TIFF) – 150 MB; Flight altitude – 100 m; GSD – 1.3 cm; Area - 0.04 sq.km;

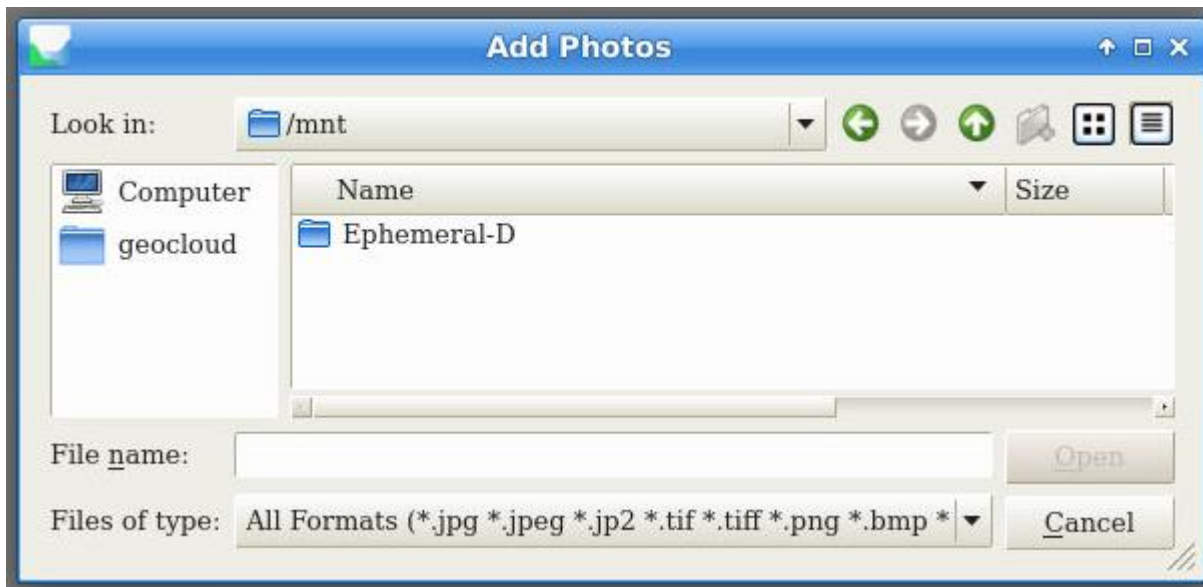
	GPU	CPU	Metashape 192GB	Metashape 192GB	Metashape 192GB	Metashape 192GB
OS			Windows 2019	Windows 2019	Linux	Linux
Storage			Storage X enhanced	Ephemeral D	Storage X enhanced	Ephemeral D
GPU			4 x TESLA T4	4 x TESLA T4	4 x TESLA T4	4 x TESLA T4
Processor type			Intel® Xeon® Cascade Lake 24C	Intel® Xeon® Cascade Lake 24C	Intel® Xeon® Cascade Lake 24C	Intel® Xeon® Cascade Lake 24C
vCPU			1 socket 24 CPU @ 2.50GHz 48 vCPU	1 socket 24 CPU @ 2.50GHz 48 vCPU	1 socket 24 CPU @ 2.50GHz 48 vCPU	1 socket 24 CPU @ 2.50GHz 48 vCPU
RAM			192	192	192	192
Match Photos (High)	v		14m 15s	2m 28s	6m 47s	2m 15s
Align Cameras (High)		v	1m 36s	1m 36s	1m 24s	1m 12s
Depth Maps (High/Mild)	v		2h 24m	1h 37m	1h 48m	1h 25m
Dense Cloud (High/Mild) without "Point color calculation"		v	3h 48m	3h 36m	3h 18m	3h 20m
Tiled Model (from Depth maps, High/Mild, High)	v	v	4h 15m	3h 48m	2h 36m	2h 32m
DEM (from Dense Cloud)		v	55s	53s	40s	38s
Orthomosaic (DEM) NO "Refine seamlines"		v	32m 9s	27m 2s	25m 31s	20m 53s
Price (\$/h)			\$11.665	\$11.665	\$12.393	\$12.393
Total time (h)			11.03	9.51	8.16	7.66
Total time (h,m)			11h 2m	9h 31m	8h 10m	7h 40m
Total price			\$128.66	\$110.93	\$101.13	\$94.93

## 17. Ephemeral disks D for Metashape 16/32/64/128 and 192GB

Using a local D drive for your data (images, project and log file) can improve processing performance by 11% for Metashape 16GB, 18% for Metashape 32GB, and 68% for Metashape 192GB (see second table for 150MP benchmarks). Processing performance improves mainly on GPU-based processes.

In our tests, there was only an improvement for 150MP large format frames, and there was only minor improvement for small 7.5MB frames. To get started with local drive D: you need to copy data from Storage X: to D:

To access the local drive from Metashape on Linux-based computers, select the folder: Computer / mnt / Ephemeral-D



### Pay attention!

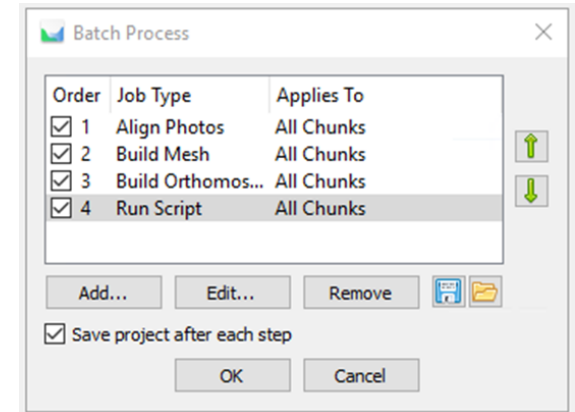
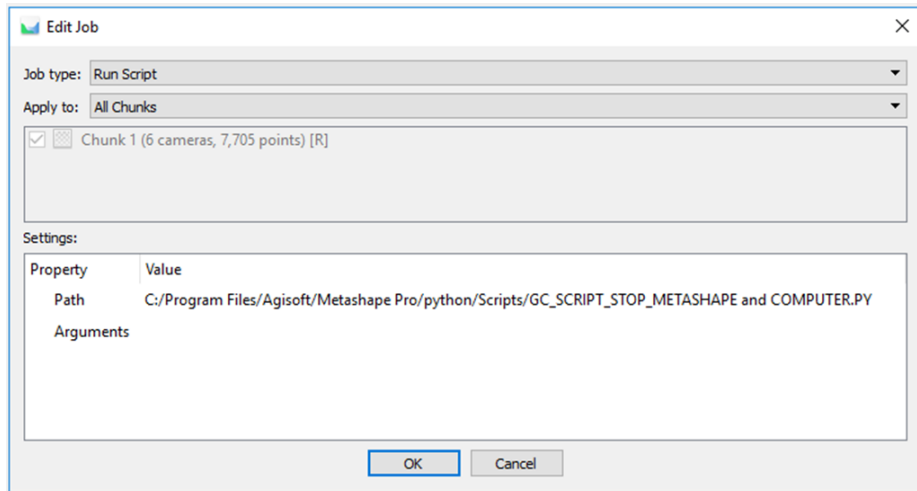
Local drive D: exists only when the computer (Metashape) is operational. If you stop your computer, the D: drive will disappear along with all data. There is no way to recover data. Therefore, please copy the processing results back to Storage X: after processing is complete and before stopping the computer. **Don't use the following script for automatic stopping of the computer in a batch mode if you use the Ephemeral disk for processing and saving the data.**

## 18. Metashape Instances support using of scripts

To exit Metashape and stop your computer in a Batch Process of Metashape use the script

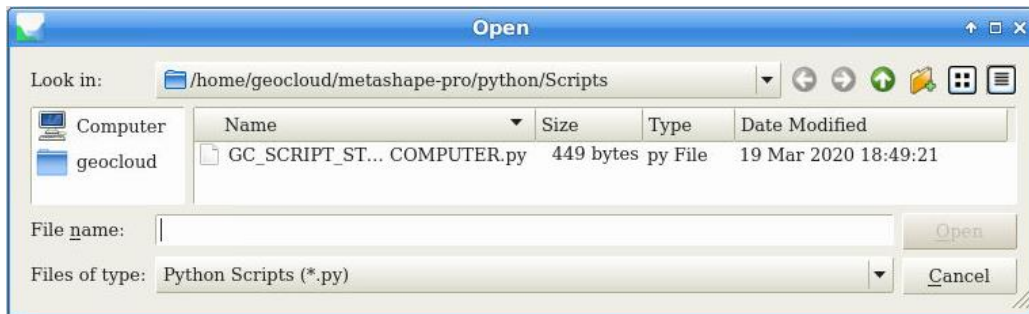
### Windows

C:/Program Files/Agisoft/Metashape Pro/python/Scripts/GC\_SCRIPT\_STOP\_METASHAPE and COMPUTER.py



### Linux

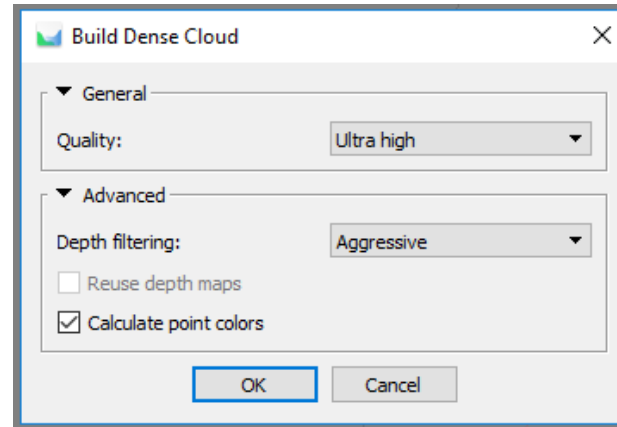
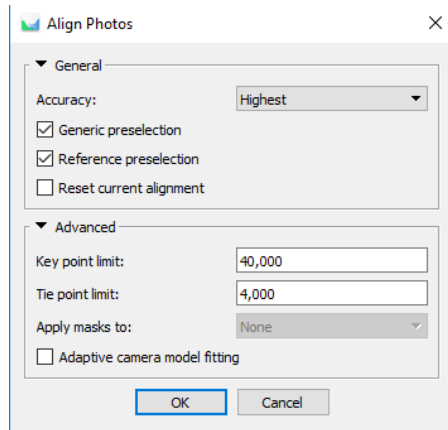
/home/geocloud/Metashape-pro/python/Scripts/GC\_SCRIPT\_STOP\_METASHAPE and COMPUTER.py



## 19. Metashape 1.6.3 processing productivity benchmarks

### a. Drone survey: FC6310 (8.8mm); Image size – 16 MP (4864 x 3648); Images - 100

File size (JPG) – 7.5 MB; Side/Forward overlap - 70%; Flight altitude – 320m; GSD – 8 cm; Area - 1.35 sq.km;



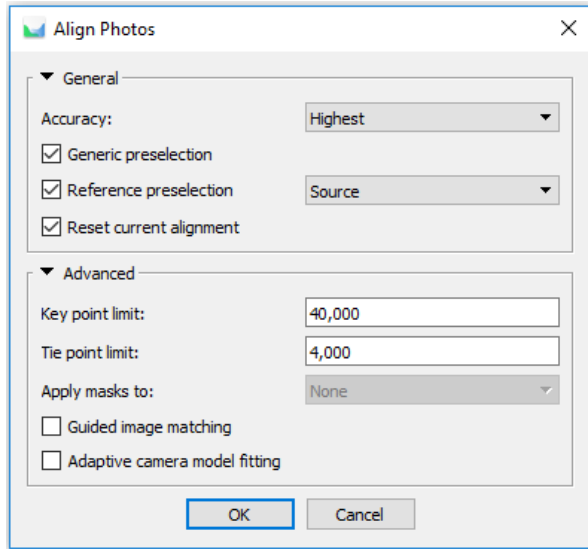


			14-07-20	20-07-20	16-07-20	20-07-20	03-10-20	
	GPU	CPU	Local PC	Metashape 16GB	Metashape 16GB	Metashape 32GB	Metashape 32GB	Metashape 122GB
OS			Windows	Windows	Linux	Windows	Linux	Windows
Storage			Local disk	Storage X enhanced	Storage X enhanced	Storage X enhanced	Storage X enhanced	Storage X enhanced
GPU			1 x GeForce GTX 1080	1 x TESLA T4	1 x TESLA T4	1 x TESLA T4	1 x TESLA T4	1 x TESLA M60
vCPU			Intel(R) Xeon(R) W-2123 CPU 3.60GHz	Cascade Lake 24C 4 vCPU 2.5GHz	Cascade Lake 24C 4 vCPU 2.5GHz	Cascade Lake 24C 8 vCPU 2.5GHz	Cascade Lake 24C 8 vCPU 2.5GHz	Intel Xeon E5-2686 v4 16 vCPU 2.3GHz
RAM			16	16	16	32	32	122
Match Photos	v		1m 27s	1m 30s	1m 23s	1m 27s	1m 25s	2m 8s
Align Cameras		v	51s	1m 56s	1m 30s	1m 12s	56s	54s
Depth Maps	v		38m 31s	42m 5s	36m 9s	33m 41s	31m 41s	47m 28s
Dense Cloud WITH "Point color calculation"		v	54m 58s	1h 55m	1h 35m	1h 1m	50m 58s	46m 49s
DEM		v	2m 47s	5m 46s	3m 53s	3m 57s	2m 53s	3m 51s
Orthomosaic NO "Refine seamlines"		v	4m 55s	9m 59s	7m 3s	5m 42s	5m 7s	5m 53s
Price (\$/h)				\$2.936	\$2.972	\$3.726	\$4.497	\$4.944
Total time (h)			1.72	2.94	2.42	1.78	1.55	1.78
Total time (h,m)			1h 43m	2h 56m	2h 25m	1h 47m	1h 33m	1h 47m
Total price				\$8.63	\$7.19	\$6.63	\$6.97	\$8.80
			20-07-20	17-07-20	19-07-20	17-07-20	23-07-20	17-07-20
	GPU	CPU	Metashape 244GB	Metashape 244GB	Metashape 488GB	Metashape 488GB	Metashape 192GB	Metashape 192GB
OS			Windows	Linux	Windows	Linux	Windows	Linux
Storage			Storage X enhanced	Storage X enhanced	Storage X enhanced	Storage X enhanced	Storage X enhanced	Storage X enhanced
GPU			2 x TESLA M60	2 x TESLA M60	4 x TESLA M60	4 x TESLA M60	4 x TESLA T4	4 x TESLA T4
vCPU			Intel Xeon E5-2686 v4 32 vCPU 2.3GHz	Intel Xeon E5-2686 v4 32 vCPU 2.3GHz	Intel Xeon E5-2686 v4 64 vCPU 2.3GHz	Intel Xeon E5-2686 v4 64 vCPU 2.3GHz	Cascade Lake 24C 48 vCPU 2.5GHz	Cascade Lake 24C 48 vCPU 2.5GHz
RAM			244	244	488	488	192	192
Match Photos	v		1m 4s	1m 2s	55s	50s	35s	40s
Align Cameras		v	37s	26s	38s	25s	33s	19s
Depth Maps	v		24m 50s	24m 39s	19m 15s	13m 34s	11m 40s	8m 11s
Dense Cloud WITH "Point color calculation"		v	37m 20s	24m 10s	54m 9s	24m 59s	29m 25s	18m 13s
DEM		v	3m 51s	2m 14s	3m 53s	2m 10s	2m 49s	1m 51s
Orthomosaic NO "Refine seamlines"		v	5m 27s	4m 22s	7m 36s	4m 6s	4m 37s	3m 31s
Price (\$/h)			\$6.914	\$7.550	\$11.587	\$12.383	\$11.665	\$12.393
Total time (h)			1.22	0.95	1.44	0.77	0.83	0.55
Total time (h,m)			1h 13m	57m	1h 26m	46m	50m	33m
Total price			\$8.44	\$7.17	\$16.69	\$9.53	\$9.68	\$6.82

b. Aircraft survey: PhaseOne iXM-RS150F (70mm); Image size – 150 MP (14204 x 10652); File size (TIF) – 432 MB

Number of images - 100

Forward overlap - 60%; Side overlap – 40%; Flight altitude – 811 m; GSD – 4.25 cm; Area – 3.0 sq.km;



**Align Photos**

General

Accuracy: Highest

Generic preselection

Reference preselection: Source

Reset current alignment

Advanced

Key point limit: 40,000

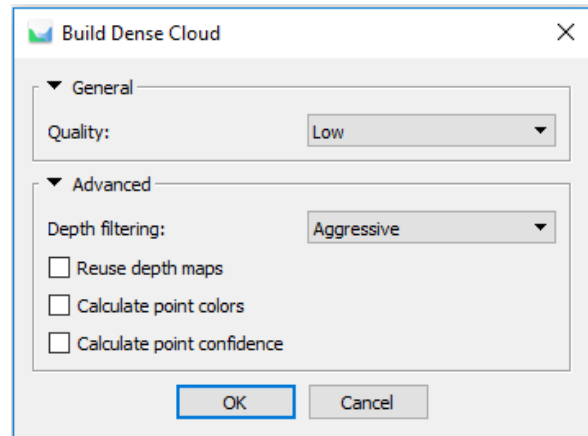
Tie point limit: 4,000

Apply masks to: None

Guided image matching

Adaptive camera model fitting

OK Cancel



**Build Dense Cloud**

General

Quality: Low

Advanced

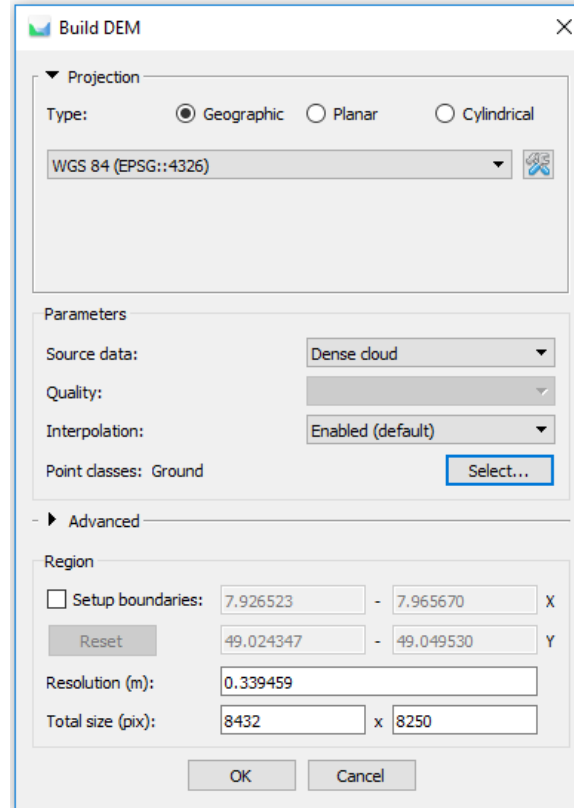
Depth filtering: Aggressive

Reuse depth maps

Calculate point colors

Calculate point confidence

OK Cancel



**Build DEM**

Projection

Type:  Geographic  Planar  Cylindrical

WGS 84 (EPSG::4326)

Parameters

Source data: Dense cloud

Quality: [dropdown]

Interpolation: Enabled (default)

Point classes: Ground Select...

Advanced

Region

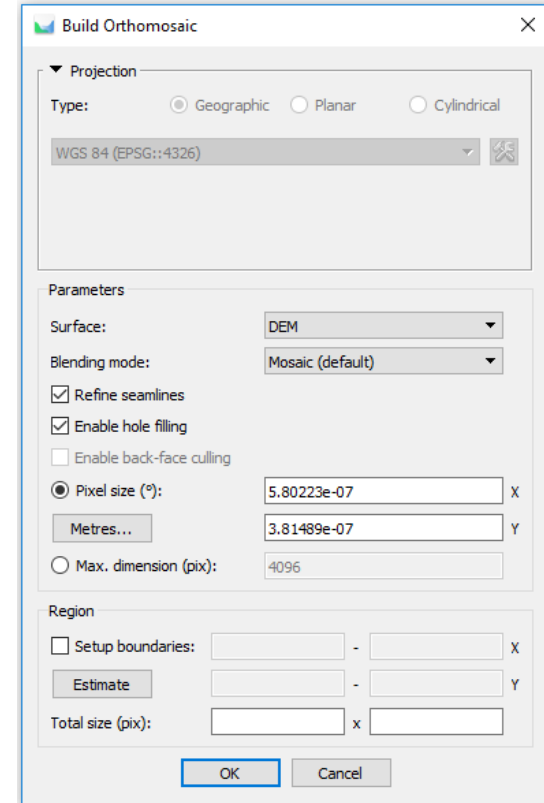
Setup boundaries: 7.926523 - 7.965670 X

49.024347 - 49.049530 Y

Resolution (m): 0.339459

Total size (pix): 8432 x 8250

OK Cancel



**Build Orthomosaic**

Projection

Type:  Geographic  Planar  Cylindrical

WGS 84 (EPSG::4326)

Parameters

Surface: DEM

Blending mode: Mosaic (default)

Refine seamlines

Enable hole filling

Enable back-face culling

Pixel size (°): 5.80223e-07 X

Metres... 3.81489e-07 Y

Max. dimension (pix): 4096

Region

Setup boundaries: [ ] - [ ] X

[ ] - [ ] Y

Total size (pix): [ ] x [ ]

OK Cancel

					14-07-20	15-07-20	16-07-20	15-07-20		
	GPU	CPU	Accuracy	GSD	Local PC	Metashape 16GB	Metashape 16GB	Metashape 32GB	Metashape 32GB	
OS					Win	Win	Linux	Win	Linux	
Storage					Local	Storage X enhanced	Storage X enhanced	Storage X enhanced	Storage X enhanced	
GPU					1 x GeForce GTX 1080	1 x TESLA T4	1 x TESLA T4	1 x TESLA T4	1 x TESLA T4	
vCPU					Intel(R) Xeon(R) W-2123 CPU 3.60GHz	Cascade Lake 24C 4 vCPU 2.5GHz	Cascade Lake 24C 4 vCPU 2.5GHz	Cascade Lake 24C 8 vCPU 2.5GHz	Cascade Lake 24C 8 vCPU 2.5GHz	
RAM					16	16	16	32	32	
Match Photos	v		Highest	4.25	17m 20s	14m 2s	8m 39s	11m 1s	7m 56s	
Align Cameras		v	Highest	4.25	44s	1m 30s	1m 9s	58s	40s	
Depth Maps	v		Low	34	11m 29s	18m 23s	13m 6s	14m 15s	11m 29s	
Dense Cloud NO "Point color calculation"		v	Low	34	7m 17s	15m 49s	13m 12s	8m 30s	6m 58s	
Classify ground points		v	15/0.25/100		2m 0s	2m 0s	2m 10s	2m 17s	1m 38s	
DEM		v	34cm	34	23s	42s	32s	31s	23s	
Orthomosaic WITH "Refine seemlines"		v	4.25cm	4.25	28m 9s	49m 28s	39m 52s	34m 41s	27m 28s	
Price (\$/h)						\$2.936	\$2.972	\$3.726	\$4.497	
Total time (h)					1.17	1.70	1.31	1.20	0.94	
Total time (h,m)					1h 10m	1h 42m	1h 19m	1h 12m	56m	
Total price						\$4.99	\$3.89	\$4.47	\$4.23	
					20-07-20	17-07-20	19-07-20	16-07-20	23-07-20	15-07-20
	GPU	CPU			Metashape 244GB	Metashape 244GB	Metashape 488GB	Metashape 488GB	Metashape 192GB	Metashape 192GB
OS					Win	Linux	Win	Linux	Win	Linux
Storage					Storage X enhanced	Storage X enhanced	Storage X enhanced	Storage X enhanced	Storage X enhanced	Storage X enhanced
GPU					2 x TESLA M60	2 x TESLA M60	4 x TESLA M60	4 x TESLA M60	4 x TESLA T4	4 x TESLA T4
vCPU					Intel Xeon E5-2686 v4 32 vCPU 2.3GHz	Intel Xeon E5-2686 v4 32 vCPU 2.3GHz	Intel Xeon E5-2686 v4 64 vCPU 2.3GHz	Intel Xeon E5-2686 v4 64 vCPU 2.3GHz	Cascade Lake 24C 48 vCPU 2.5GHz	Cascade Lake 24C 48 vCPU 2.5GHz
RAM					244	244	488	488	192	192
Match Photos	v		Highest	4.25	12m 16s	7m 39s	8m 51s	6m 24s	8m 4s	4m 49s
Align Cameras		v	Highest	4.25	37s	23s	39s	33s	27s	23s
Depth Maps	v		Low	34	16m 47s	12m 12s	17m 35s	10m 34s	11m 30s	8m 29s
Dense Cloud NO "Point color calculation"		v	Low	34	5m 2s	3m 2s	6m 51s	2m 55s	4m 6s	2m 11s
Classify ground points		v	15/0.25/100		2m 6s	1m 1s	2m 40s	1m 3s	1m 30s	1m 0s
DEM (ground points only)		v	34cm	34	32s	19s	30s	19s	24s	16s
Orthomosaic WITH "Refine seemlines"		v	4.25cm	4.25	32m 55s	21m 14s	40m 43s	20m 58s	27m 27s	17m 59s
Price (\$/h)					\$6.914	\$7.550	\$11.587	\$12.383	\$11.665	\$12.393
Total time (h)					1.17	0.76	1.30	0.71	0.89	0.59
Total time (h,m)					1h 10m	0h 46m	1h 18m	43m	53m	35m
Total price					\$8.09	\$5.74	\$15.06	\$8.79	\$10.38	\$7.31

					18-08-20	18-08-20	17-08-20	17-08-20	17-08-20	16-08-20
	GPU	CPU	Accuracy	GSD	Metashape 16GB	Metashape 16GB	Metashape 32GB	Metashape 32GB	Metashape 192GB	Metashape 192GB
OS					Win	Linux	Win	Linux	Win	Linux
Storage					Local D Project D	Local D Project D	Local D Project D	Local D Project D	Local D Project D	Local D Project D
GPU					1 x TESLA T4	1 x TESLA T4	1 x TESLA T4	1 x TESLA T4	4 x TESLA T4	4 x TESLA T4
vCPU					Cascade Lake 24C 4 vCPU 2.5GHz	Cascade Lake 24C 4 vCPU 2.5GHz	Cascade Lake 24C 8 vCPU 2.5GHz	Cascade Lake 24C 8 vCPU 2.5GHz	Cascade Lake 24C 48 vCPU 2.5GHz	Cascade Lake 24C 48 vCPU 2.5GHz
RAM					16	16	32	32	192	192
Match Photos	v		Highest	4.25	11m 13s	5m 55s	9m 13s	5m 17s	2m 22s	1m 24s
Align Cameras		v	Highest	4.25	1m 31s	1m 11s	1m 0s	44s	29s	15s
Depth Maps	v		Low	34	12m 24s	11m 4s	8m 13s	7m 30s	3m 23s	2m 15s
Dense Cloud NO "Point color calculation"		v	Low	34	16m 1s	13m 3s	8m 41s	6m 53s	4m 4s	2m 6s
Classify ground points		v	15/0.25/100		3m 4s	2m 9s	2m 0s	1m 28s	1m 16s	1m 0s
DEM		v	34cm	34	36s	31s	26s	23s	19s	15s
Orthomosaic WITH "Refine seamlines"		v	4.25cm	4.25	45m 26s	37m 35s	32m 0s	25m 45s	21m 47s	13m 19s
<b>Price (\$/h)</b>					<b>\$2.936</b>	<b>\$2.972</b>	<b>\$3.726</b>	<b>\$4.497</b>	<b>\$11.665</b>	<b>\$12.393</b>
<b>Total time (h)</b>					<b>1.50</b>	<b>1.19</b>	<b>1.03</b>	<b>0.80</b>	<b>0.56</b>	<b>0.35</b>
<b>Total time (h,m)</b>					<b>1h 30m</b>	<b>1h 11m</b>	<b>1h 2m</b>	<b>48m</b>	<b>34m</b>	<b>21m</b>
<b>Total price</b>					<b>\$4.40</b>	<b>\$3.54</b>	<b>\$3.84</b>	<b>\$3.60</b>	<b>\$6.53</b>	<b>\$4.34</b>

c. Aircraft survey: PhaseOne iXM-RS280F (90mm); Image size – 280 MP (20150 x 14118); File size (TIF) – 813 MB

Strips – 11; Number of images - 88

Forward overlap - 73%; Side overlap – 80%; Flight altitude – 1130 m; GSD – 4.6 cm; Area – 5.5 sq.km;

						19-09-20	19-09-20	09-09-20	09-09-20
	GPU	CPU	Processing Level	GSD (cm)	Local PC	Metashape 192GB	Metashape 192GB	Metashape 192GB	Metashape 192GB
OS					Win	WIN	WIN	Linux	Linux
Storage					Local	Storage X enhanced	Local drive D	Storage X enhanced	Local drive D
GPU					1 x GeForce GTX 1080	4 x TESLA T4	4 x TESLA T4	4 x TESLA T4	4 x TESLA T4
vCPU					Intel(R) Xeon(R) W-2123 CPU 3.60GHz	Cascade Lake 24C 48 vCPU 2.5GHz	Cascade Lake 24C 48 vCPU 2.5GHz	Cascade Lake 24C 48 vCPU 2.5GHz	Cascade Lake 24C 48 vCPU 2.5GHz
RAM					16	192	192	192	192
Match Photos	v		Highest	4.6	30m 45s	8m 18s	3m 27s	8m 57s	2m 24s
Align Cameras		v	Highest	4.6	31s	32s	27s	21s	16s
Depth Maps	v		Low	36.8	26m 15s	19m 47s	7m 11s	19m 34s	4m 45s
Dense Cloud NO "Point color calculation"		v	Low	36.8	11m 6s	5m 30s	5m 53s	3m 17s	3m 9s
Classify ground points		v	15/0.25/100	36.8	4m 0s	1m 30s	1m 45s	1m 12s	1m 15s
DEM (ground points only)		v	36.8	36.8	31s	34s	25s	21s	20s
Orthomosaic WITH "Refine seamlines"		v	4.6	4.6	1h 2m	45m 52s	38m 20s	31m 1s	23m 24s
<b>Price (\$/h)</b>						<b>\$11.665</b>	<b>\$11.665</b>	<b>\$12.393</b>	<b>\$12.393</b>
<b>Total time (h)</b>					<b>2.25</b>	<b>1.37</b>	<b>0.96</b>	<b>1.08</b>	<b>0.59</b>
<b>Total time (h,m)</b>					<b>2h 15m</b>	<b>1h 22m</b>	<b>58m</b>	<b>1h 5m</b>	<b>35m</b>
<b>Total price</b>						<b>\$15.98</b>	<b>\$11.20</b>	<b>\$13.38</b>	<b>\$7.31</b>

d. Aircraft survey: PhaseOne iXM-RS280F (90mm); Image size – 280 MP (20150 x 14118); File size (TIF) – 813 MB

Strips – 6; Number of images - 48

Forward overlap - 73%; Side overlap – 60%; Flight altitude – 1130 m; GSD – 4.6 cm; Area – 5.1 sq.km;

						19-09-20	19-09-20	09-09-20	09-09-20
	GPU	CPU	Processing Level	GSD (cm)	Local PC	Metashape 192GB	Metashape 192GB	Metashape 192GB	Metashape 192GB
OS					Win	WIN	WIN	Linux	Linux
Storage					Local	Storage X enhanced	Local drive D	Storage X enhanced	Local drive D
GPU					1 x GeForce GTX 1080	4 x TESLA T4	4 x TESLA T4	4 x TESLA T4	4 x TESLA T4
vCPU					Intel(R) Xeon(R) W-2123 CPU 3.60GHz	Cascade Lake 24C 48 vCPU 2.5GHz	Cascade Lake 24C 48 vCPU 2.5GHz	Cascade Lake 24C 48 vCPU 2.5GHz	Cascade Lake 24C 48 vCPU 2.5GHz
RAM					16	192	192	192	192
Match Photos	v		Highest	4.6	13m 54s	3m 34s	1m 38s	3m 54s	1m 12s
Align Cameras		v	Highest	4.6	19s	15s	16s	9s	8s
Depth Maps	v		Low	36.8	7m 27s	7m 2s	2m 25s	7m 6s	1m 31s
Dense Cloud NO "Point color calculation"		v	Low	36.8	4m 6s	3m 6s	3m 9s	1m 41s	1m 38s
Classify ground points		v	15/0.25/100	36.8	3m 30s	1m 47s	1m 31s	1m 23s	1m 9s
DEM (ground points only)		v	36.8	36.8	27s	29s	20s	17s	16s
Orthomosaic WITH "Refine seamlines"		v	4.6	4.6	40m 10s	32m 57s	29m 17s	23m 18s	19m 2s
<b>Price (\$/h)</b>						<b>\$11.665</b>	<b>\$11.665</b>	<b>\$12.393</b>	<b>\$12.393</b>
<b>Total time (h)</b>					<b>1.16</b>	<b>0.84</b>	<b>0.64</b>	<b>0.63</b>	<b>0.42</b>
<b>Total time (h,m)</b>					<b>1h 10m</b>	<b>50m</b>	<b>38m</b>	<b>38m</b>	<b>25m</b>
<b>Total price</b>						<b>\$9.80</b>	<b>\$7.47</b>	<b>\$7.81</b>	<b>\$5.21</b>