Notes for setup	Intel Core i5 9600k										
MSI RTX 2070 Gaming Z	Stock (even RAM)	Stock (but memory XMP)	Stock with Game Boost	Stock with Enhanced Turbo	Overclocked 4.9GHz at 1.32v	Overclocked 5.0GHz at 1.32v	Overclocked 5.0GHz at 1.33v	Overclocked 5.0GHz at 1.34v	Overclocked 5.0GHz at 1.35v	Overclocked 5.0GHz at 1.38v	
Stock	**No load** Cores at 30C GPU at 28C **CPU-Z load test** 514.7 single, 2803 multi. Hottest core 52C. **Heaven & Valley** 2875 (68.7 FPS, 16.2 min, 130.8 max) **Superposition** 7550 (56.48 avg, 46.99 min, 68.98 max, GPU 29-60C)	**CPU-Z load test** 518.5 single, 2833 multi. **Superposition** No change.	**No load** Cores at 32C GPU at 29C **CPU-Z load test** 530.1 single, 2919.7 multi. **Superposition** 7554 (56.50 avg, 47.03 min, 68.70 max, GPU 29-60C)	**No load** Cores at 34C GPU at 30C **CPU-Z load test** 555.6 single, 3048.7 multi. Hottest core 60C. **Superposition** 7536 (56.37 avg, 46.82 min, 68.11 max, GPU 29-60C)	**No load** Cores at 38C GPU at 30C **CPU-Z load test** 588 single, 3197.4 multi. Hottest core 66C. **Heaven & Valley** 2907 (69.5 FPS, 35.7 min, 126.6 max) **Superposition** 7576 (56.67 avg, 46.91 min, 69.09 max, GPU 29-60C)	**Blue screen on startup**	**Blue screen on startup**	**Got to login page, but after logging in, computer crashed.**	**No load** Cores at 40C GPU at 30C **CPU-Z load test** 603.1 single, 3342.7 multi. Hottest core 70C. Note: *seemed faster when CPU fan wasn't cranked to 100%*, but temp got to 75C. **CPU-Z stress test** 40 minutes, no issue. CPU got to 75C. **Heaven & Valley** 2094 (69.4 FPS, 54.0 min, 126.6 max) **Superposition** 7543 (56.42 avg, 46.95 min, 68.48 max, GPU 29-60C). Hottest core got to 64C. **Modern Warfare** Crashed immediately **Tomb Raider** Crashed immediately	**No load** Cores at 42C GPU at 32C **CPU-Z load test** 593.7 single, 3287.2 multi.	
+200MHz for VRAM									**Superposition** 7452 (55.74 avg, 46.44 min, 68.13 max, GPU 36-64C). Did not hit power limit or any other limit during test.		
+400MHz for VRAM									**Superposition** 7503 (56.12 avg, 46.79 min, 68.60 max, GPU 34-64C). Hit power limit very briefly two times during test.		
+600MHz for VRAM									**Superposition** 7551 (56.48 avg, 47.16 min, 69.34 max, GPU 36-65C). Hit power limit very briefly two times during test.		
+800MHz for VRAM									**Superposition** 7586 (56.75 avg, 47.38 min, 69.17 max, GPU 35-65C). Hit power limit maybe 50% of the test.		
+1000MHz for VRAM									**Superposition** 7580 (56.70 avg, 47.21 min, 69.64 max, GPU 36-65C). Weirdly, didn't hit power limit at all during the test.		
+1200MHz for VRAM									**Superposition** 7643 (57.17 avg, 47.34 min, 69.74 max, GPU 36-66C). Hit power limit maybe 70% of the test.		
+1400MHz for VRAM									**Superposition** 7676 (57.41 avg, 47.60 min, 70.35 max, GPU 36-66C). Hit power limit maybe 50% of the test.		
+1500MHz for VRAM									**Superposition** Getting artifacting		
+1600MHz for VRAM									**Superposition** Crashes instantly		
+25MHz for GPU											
+40MHz for GPU											
+70MHz for GPU, +600MHz for VRAM										**Modern Warfare** Stable, but feel like we're pushing it to the point where there's stuttering.	
+70MHz for GPU										**Modern Warfare** Perfectly stable. 3 hours of gameplay at max graphics 1440p even with ray tracing on and getting 60fps solid (could only pay 4k without ray tracing at 40fps).	
+85MHz for GPU										**Modern Warfare** Game eventually crashed and computer went with it.	
+100MHz for GPU									**Superposition** 7644 (57.17 avg, 47.54 min, 70.28 max, GPU 34-64C). Hit power limit for 1 second. Memory clock also seems to be capping out.	**Modern Warfare** Crashed entire computer when changing settings while game already launched.	
+100MHz for GPU, +200MHz for VRAM										**Modern Warfare** Crashed entire computer when changing settings while game already launched.	
+100MHz for GPU, +400MHz for VRAM										**Modern Warfare** Crashed with DirectX error.	
+100MHz for GPU, +500MHz for VRAM										**Superposition** 7724 (57.77 avg, 48.08 min, 70.92 max, GPU 47-73C). **Modern Warfare** Crashed with DirectX error.	
+100MHz for GPU, +750MHz for VRAM										Superposition 7773 (58.14 avg, 48.53 min, 70.82 max, GPU 51-75C).	
+100MHz for GPU, +875MHz for VRAM										**Superposition** 7795 (58.31 avg, 48.54 min, 70.92 max, GPU 53-76C). Hit power limit nearly 100% of the test.	
+100MHz for GPU, +1000MHz for VRAM										**Superposition** Crashes after 10 seconds	
+100MHz for GPU, +1400MHz for VRAM									**Superposition** 7792 (58.28 avg, 47.94 min, 71.23 max, GPU 41-67C). Hit power limit nearly 100% of the test. This beats all the 2070s on this benchmark that have been published. Someone had the same GPU and CPU and got 7445. 2nd place after me with a 2070 is a 7757.	**Superposition** Crashes after 10 seconds	
+106MHz for GPU									**Superposition** Crashes after 3 seconds		
+113MHz for GPU									**Superposition** Crashes after 2 seconds		
+125MHz for GPU									**Superposition** Crashes after 1 second		
+150MHz for GPU									**Superposition** Crashes basically instantly		
+200MHz for GPU									**Superposition** Crashes instantly		

Comments

Sheet 1

1. Joe Puccio
   July 2, 2020 at 5:04:51 AM
   For every test, be sure that every fan (GPU, CPU, and case fans) are set to max so that no thermal throttling can take place.

   Our methodology is checking for peak, so do each test a couple times and record only the peak one.

2. Joe Puccio
   July 2, 2020 at 5:25:07 AM
   Note: this is the only case where XMP wasn't on (memory wasn't overclocked)

3. Joe Puccio
   July 2, 2020 at 5:41:02 AM
   Note that all GPU measurements were with 100% max allowed power (111% power) and 100% max allowed voltage (use all available headroom). Basically, those slides cranked all the way right.

4. Joe Puccio
   July 2, 2020 at 5:41:02 AM
   Note that all GPU measurements were with 100% max allowed power (111% power) and 100% max allowed voltage (use all available headroom). Basically, those slides cranked all the way right.

5. Joe Puccio
   July 2, 2020 at 5:41:02 AM
   Note that all GPU measurements were with 100% max allowed power (111% power) and 100% max allowed voltage (use all available headroom). Basically, those slides cranked all the way right.

6. Joe Puccio
   July 2, 2020 at 5:41:02 AM
   Note that all GPU measurements were with 100% max allowed power (111% power) and 100% max allowed voltage (use all available headroom). Basically, those slides cranked all the way right.

7. Joe Puccio
   July 2, 2020 at 5:41:02 AM
   Note that all GPU measurements were with 100% max allowed power (111% power) and 100% max allowed voltage (use all available headroom). Basically, those slides cranked all the way right.

8. Joe Puccio
   July 2, 2020 at 5:41:02 AM
   Note that all GPU measurements were with 100% max allowed power (111% power) and 100% max allowed voltage (use all available headroom). Basically, those slides cranked all the way right.

9. Joe Puccio
   July 2, 2020 at 5:41:02 AM
   Note that all GPU measurements were with 100% max allowed power (111% power) and 100% max allowed voltage (use all available headroom). Basically, those slides cranked all the way right.