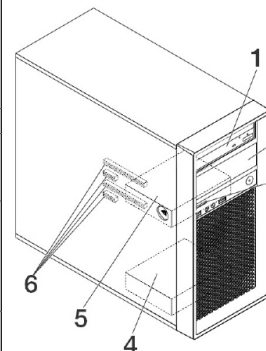


# ThinkStation P320 Tower Platform Specifications

Product Specifications Reference (PSREF)

| Components                     | Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
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| Chipset                        | Intel C236 Chipset                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
| Intel AMT                      | Intel Active Management Technology 11 on Xeon models, Intel Standard Manageability on other models                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
| Processor                      | One Intel "Kaby Lake" or "Skylake" processor as listed:<br>"Kaby Lake"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                | <table><tr><td>Xeon E3-1280 v6</td><td>4C/3.9GHz/8MB/72W/DDR4-2400</td></tr><tr><td>Xeon E3-1275 v6</td><td>4C/3.8GHz/8MB/73W/DDR4-2400</td></tr><tr><td>Xeon E3-1270 v6</td><td>4C/3.8GHz/8MB/72W/DDR4-2400</td></tr><tr><td>Xeon E3-1245 v6</td><td>4C/3.7GHz/8MB/73W/DDR4-2400</td></tr><tr><td>Xeon E3-1240 v6</td><td>4C/3.7GHz/8MB/72W/DDR4-2400</td></tr><tr><td>Xeon E3-1230 v6</td><td>4C/3.5GHz/8MB/72W/DDR4-2400</td></tr><tr><td>Xeon E3-1225 v6</td><td>4C/3.3GHz/8MB/73W/DDR4-2400</td></tr><tr><td>Xeon E3-1220 v6</td><td>4C/3GHz/8MB/72W/DDR4-2400</td></tr><tr><td>Core i7-7700K</td><td>4C/4.2GHz/8MB/91W/DDR4-2400</td></tr><tr><td>Core i7-7700</td><td>4C/3.6GHz/8MB/65W/DDR4-2400</td></tr><tr><td>Core i5-7600</td><td>4C/3.5GHz/6MB/65W/DDR4-2400</td></tr><tr><td>Core i5-7500</td><td>4C/3.4GHz/6MB/65W/DDR4-2400</td></tr><tr><td>Core i5-7400</td><td>4C/3GHz/6MB/65W/DDR4-2400</td></tr><tr><td>Core i3-7300</td><td>2C/4GHz/4MB/51W/DDR4-2400</td></tr><tr><td>Core i3-7100</td><td>2C/3.9GHz/3MB/51W/DDR4-2400</td></tr></table> | Xeon E3-1280 v6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4C/3.9GHz/8MB/72W/DDR4-2400 | Xeon E3-1275 v6             | 4C/3.8GHz/8MB/73W/DDR4-2400 | Xeon E3-1270 v6             | 4C/3.8GHz/8MB/72W/DDR4-2400 | Xeon E3-1245 v6             | 4C/3.7GHz/8MB/73W/DDR4-2400 | Xeon E3-1240 v6             | 4C/3.7GHz/8MB/72W/DDR4-2400 | Xeon E3-1230 v6           | 4C/3.5GHz/8MB/72W/DDR4-2400 | Xeon E3-1225 v6             | 4C/3.3GHz/8MB/73W/DDR4-2400 | Xeon E3-1220 v6             | 4C/3GHz/8MB/72W/DDR4-2400 | Core i7-7700K               | 4C/4.2GHz/8MB/91W/DDR4-2400 | Core i7-7700                | 4C/3.6GHz/8MB/65W/DDR4-2400 | Core i5-7600 | 4C/3.5GHz/6MB/65W/DDR4-2400 | Core i5-7500 | 4C/3.4GHz/6MB/65W/DDR4-2400 | Core i5-7400 | 4C/3GHz/6MB/65W/DDR4-2400 | Core i3-7300 | 2C/4GHz/4MB/51W/DDR4-2400 | Core i3-7100 | 2C/3.9GHz/3MB/51W/DDR4-2400 |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                | Xeon E3-1280 v6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 4C/3.9GHz/8MB/72W/DDR4-2400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                | Xeon E3-1275 v6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 4C/3.8GHz/8MB/73W/DDR4-2400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                | Xeon E3-1270 v6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 4C/3.8GHz/8MB/72W/DDR4-2400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                | Xeon E3-1245 v6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 4C/3.7GHz/8MB/73W/DDR4-2400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                | Xeon E3-1240 v6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 4C/3.7GHz/8MB/72W/DDR4-2400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                | Xeon E3-1230 v6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 4C/3.5GHz/8MB/72W/DDR4-2400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                | Xeon E3-1225 v6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 4C/3.3GHz/8MB/73W/DDR4-2400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                | Xeon E3-1220 v6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 4C/3GHz/8MB/72W/DDR4-2400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                | Core i7-7700K                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 4C/4.2GHz/8MB/91W/DDR4-2400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                | Core i7-7700                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 4C/3.6GHz/8MB/65W/DDR4-2400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                | Core i5-7600                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 4C/3.5GHz/6MB/65W/DDR4-2400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                | Core i5-7500                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 4C/3.4GHz/6MB/65W/DDR4-2400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                | Core i5-7400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 4C/3GHz/6MB/65W/DDR4-2400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                | Core i3-7300                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 2C/4GHz/4MB/51W/DDR4-2400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                | Core i3-7100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 2C/3.9GHz/3MB/51W/DDR4-2400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                | Processor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | "Skylake"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <table><tr><td>Xeon E3-1245 v5</td><td>4C/3.5GHz/8MB/80W/DDR4-2133</td></tr><tr><td>Xeon E3-1240 v5</td><td>4C/3.5GHz/8MB/80W/DDR4-2133</td></tr><tr><td>Xeon E3-1230 v5</td><td>4C/3.4GHz/8MB/80W/DDR4-2133</td></tr><tr><td>Xeon E3-1225 v5</td><td>4C/3.3GHz/8MB/80W/DDR4-2133</td></tr><tr><td>Xeon E3-1220 v5</td><td>4C/3GHz/8MB/80W/DDR4-2133</td></tr><tr><td>Core i7-6700</td><td>4C/3.4GHz/8MB/65W/DDR4-2133</td></tr><tr><td>Core i5-6500</td><td>4C/3.2GHz/6MB/65W/DDR4-2133</td></tr><tr><td>Core i5-6400</td><td>4C/2.7GHz/6MB/65W/DDR4-2133</td></tr><tr><td>Core i3-6100</td><td>2C/3.7GHz/3MB/51W/DDR4-2133</td></tr></table> | Xeon E3-1245 v5             | 4C/3.5GHz/8MB/80W/DDR4-2133 | Xeon E3-1240 v5             | 4C/3.5GHz/8MB/80W/DDR4-2133 | Xeon E3-1230 v5             | 4C/3.4GHz/8MB/80W/DDR4-2133 | Xeon E3-1225 v5             | 4C/3.3GHz/8MB/80W/DDR4-2133 | Xeon E3-1220 v5             | 4C/3GHz/8MB/80W/DDR4-2133 | Core i7-6700                | 4C/3.4GHz/8MB/65W/DDR4-2133 | Core i5-6500                | 4C/3.2GHz/6MB/65W/DDR4-2133 | Core i5-6400              | 4C/2.7GHz/6MB/65W/DDR4-2133 | Core i3-6100                | 2C/3.7GHz/3MB/51W/DDR4-2133 |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Xeon E3-1245 v5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4C/3.5GHz/8MB/80W/DDR4-2133 |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
| Xeon E3-1240 v5                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 4C/3.5GHz/8MB/80W/DDR4-2133                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
| Xeon E3-1230 v5                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 4C/3.4GHz/8MB/80W/DDR4-2133                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
| Xeon E3-1225 v5                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 4C/3.3GHz/8MB/80W/DDR4-2133                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
| Xeon E3-1220 v5                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 4C/3GHz/8MB/80W/DDR4-2133                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
| Core i7-6700                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 4C/3.4GHz/8MB/65W/DDR4-2133                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
| Core i5-6500                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 4C/3.2GHz/6MB/65W/DDR4-2133                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
| Core i5-6400                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 4C/2.7GHz/6MB/65W/DDR4-2133                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
| Core i3-6100                   | 2C/3.7GHz/3MB/51W/DDR4-2133                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
| Memory DIMM slots              | 4 DIMM slots, 2-channel (integrated memory controller in processor)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
| Memory type/capacity           | Up to 64GB ECC/non-ECC (4 x 16GB), DDR4-2400. UDIMM. "Skylake" processor supports up to DDR4-2133. Core i7 and i5 processors cannot support ECC.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
| Intel HD Graphics in processor | Integrated Intel HD P530 in Xeon E3-12x5 v5 processors, or Intel HD P630 in Xeon E3-12x5 v6 processors, or Intel HD 530 in Core i7, i5, or i3 6000 processors. or Intel HD 630 in Core i7, i5, or i3 7000 processors. Works along with discrete graphics to support multi-display, enables three display connectors (2 DP, 1 VGA) on rear.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
| Discrete graphics              | Two PCI Express 3.0 x16 slots for graphics adapters. Up to two Quadro P1000 on 250 watts models. Or up to two Quadro P2000, or up to one Quadro P4000 on 400 watts models. Supports the following NVIDIA graphics adapters:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                | <table><tr><th>Adapter</th><th>Cores</th><th>Memory</th><th>Power</th><th>Connector</th></tr><tr><td>NVS 310</td><td>48</td><td>1GB</td><td>19.5W</td><td>2xDP</td></tr><tr><td>NVS 315</td><td>48</td><td>1GB</td><td>19.5W</td><td>2xDVI-I SL/2xDP</td></tr><tr><td>NVS 510</td><td>192</td><td>2GB</td><td>33.4W</td><td>4xmini DP</td></tr><tr><td>NVS 810</td><td>1024</td><td>4GB</td><td>68W</td><td>8xmini DP</td></tr><tr><td>Quadro P400</td><td>256</td><td>2GB</td><td>30W</td><td>3xminiDP</td></tr><tr><td>Quadro P600</td><td>384</td><td>2GB</td><td>40W</td><td>4xminiDP</td></tr><tr><td>Quadro P1000</td><td>640</td><td>4GB</td><td>47W</td><td>4xminiDP</td></tr><tr><td>Quadro P2000</td><td>1024</td><td>5GB</td><td>75W</td><td>4xDP</td></tr><tr><td>Quadro P4000</td><td>1792</td><td>8GB</td><td>105W</td><td>4xDP</td></tr></table>                                                                                                                                                                                                  | Adapter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Cores                       | Memory                      | Power                       | Connector                   | NVS 310                     | 48                          | 1GB                         | 19.5W                       | 2xDP                        | NVS 315                   | 48                          | 1GB                         | 19.5W                       | 2xDVI-I SL/2xDP             | NVS 510                   | 192                         | 2GB                         | 33.4W                       | 4xmini DP                   | NVS 810      | 1024                        | 4GB          | 68W                         | 8xmini DP    | Quadro P400               | 256          | 2GB                       | 30W          | 3xminiDP                    | Quadro P600 | 384 | 2GB | 40W | 4xminiDP | Quadro P1000 | 640 | 4GB | 47W | 4xminiDP | Quadro P2000 | 1024 | 5GB | 75W | 4xDP | Quadro P4000 | 1792 | 8GB | 105W | 4xDP |
|                                | Adapter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Cores                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Memory                      | Power                       | Connector                   |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                | NVS 310                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 48                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1GB                         | 19.5W                       | 2xDP                        |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                | NVS 315                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 48                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1GB                         | 19.5W                       | 2xDVI-I SL/2xDP             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                | NVS 510                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 192                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2GB                         | 33.4W                       | 4xmini DP                   |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                | NVS 810                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 4GB                         | 68W                         | 8xmini DP                   |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                | Quadro P400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 256                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2GB                         | 30W                         | 3xminiDP                    |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                | Quadro P600                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 384                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2GB                         | 40W                         | 4xminiDP                    |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                | Quadro P1000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 640                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 4GB                         | 47W                         | 4xminiDP                    |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
| Quadro P2000                   | 1024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 5GB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 75W                         | 4xDP                        |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
| Quadro P4000                   | 1792                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 8GB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 105W                        | 4xDP                        |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
| Onboard drive controller       | Five onboard SATA 6.0Gb/s connectors for optical and disk drives plus one SATA connector for optional eSATA. RAID 0, 1, 5, 10 support                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
| Drive Bays                     | Two external 5.25" bays, two internal 3.5" bays (see right). Up to one 9mm optical plus 4 x 3.5" disk drive bays plus two M.2 NVMe SSD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
| Supporting disk drives         | 3.5" SATA HDD (7.2K 6Gbs)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1TB/2TB/4TB/1TB hybrid/2TB hybrid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                | 2.5" SATA SSD (6Gbs)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 256GB Opal/512GB/512GB Opal/1TB Opal/2TB opal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                | M.2 NVMe SSD, via PCIe adapter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 256GB Opal/512GB Opal/1TB Opal, PCIe 3.0 x4, up to 2; or 16GB Intel Optane Memory, PCIe 3.0 x2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
| Max internal storage           | 16TB (4 x 4TB 3.5" HDDs) plus 2TB (2 x 1TB) M.2 NVMe SSD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |
| Media reader                   | 9-in-1 card reader. Optional 29-in-1 card reader on selected models                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                             |                             |                             |                             |                             |                             |                             |                             |                             |                           |                             |                             |                             |                             |                           |                             |                             |                             |                             |              |                             |              |                             |              |                           |              |                           |              |                             |             |     |     |     |          |              |     |     |     |          |              |      |     |     |      |              |      |     |      |      |

| Components                   | Specification                                                                                                                                                                                                                        |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power supply                 | One 250 watts with variable speed fan, autosensing, Climate Savers Computing Bronze, 80 PLUS Bronze qualified. Or one 400 watts with variable speed fan, autosensing, Climate Savers Computing Platinum, 80 PLUS Platinum qualified. |
| Onboard Ethernet             | One onboard gigabit ethernet, Intel I219LM, supports Wake-on-LAN                                                                                                                                                                     |
| HD Audio                     | Realtek ALC662 codec                                                                                                                                                                                                                 |
| TPM                          | Standard, TCG 2.0-compliant                                                                                                                                                                                                          |
| Front ports                  | Two USB 3.0, microphone (3.5mm), headphone (3.5mm)                                                                                                                                                                                   |
| Rear ports                   | 1 VGA and 2 DisplayPort (for Intel HD Graphics models only), two USB 2.0, four USB 3.0, one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)                                               |
| Mechanical                   | <ul style="list-style-type: none"> <li>Raven black color; metal case</li> <li>6.89"W x 16.77"D x 14.8"H</li> <li>175mm W x 426mm D x 376mm H</li> <li>28.66 lb (13kg) max configuration</li> <li>25-liter</li> </ul>                 |
| Environmental certifications | GREENGUARD certified/RoHS-compliant/EPEAT Gold rating/ENERGY STAR 6.1 qualified                                                                                                                                                      |
| Limited warranty             | 1 or 3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units.                                                                                                                                          |
| ISV certifications           | Please visit <a href="http://www.thinkworkstations.com/isv-certifications/">www.thinkworkstations.com/isv-certifications/</a>                                                                                                        |



## Drive Bays and PCIe Slots

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bay 1 and Bay 2 | 5.25", support one of the following:<br>HH optical/flex module/9mm optical+3.5" HDD bay/<br>3.5" HDD bay/Front Access Storage Enclosure (FASE)<br><i>Note:</i><br>1. Flex module supports one or more of the following: 9mm optical/<br>29-in-1 reader/front IEEE 1394/front eSATA.<br>2. Up to one flex module/FASE per system.                                                                                                                                                                                                   |
| Bay 3           | Optional 9-in-1 single slot reader                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Bay 4           | Standard 3.5" HDD bay                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Bay 5           | Standard 3.5" HDD bay                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 6 -Slots        | Four PCIe slots (top-down):<br>Slot 1: Half length, full height, PCIe 3.0 x16 (near CPU)<br>Slot 2: Half length, full height, PCIe 3.0 x1<br>Slot 3: Half length, full height, PCIe 3.0 x16 (x4 elec)<br>Slot 4: Half length, full height, PCIe 3.0 x1<br><i>Note:</i><br>1. Both discrete graphics adapter and M.2 NVMe SSD should be installed on slot 1 or slot 3, the maximum quantity of discrete graphics adapter and M.2 NVMe SSD is 2.<br>2. When two discrete graphics adapters are used, no other PCIe card can be used. |

