

## Hardware Background

The Ice Lake server processor is the latest offering from Intel. There are many enhancements over and above the Cascade Lake, one being that there are 8 memory channels per CPU using higher speed DDR4 with a performance maximum of 2 DIMM's per channel. To make sense out of the CPU performance all memory channels must be populated by at least one DDR4 DIMM. The table below defines the configurations using current technology DDR4 DIMM's:

<u>Processor</u>	<u>Memory</u>	<u>Min DIMM Capacity</u>	<u>Max DIMM Capacity</u>	<u>Max Capacity/CPU</u>
8***/6***	DDR4-3200	4GByte	128GByte	2TByte
5***	DDR4-2933	4GByte	256GByte	4TByte
4***	DDR4-2666	2GByte	256GByte	4TByte

## BIOS

The Ice Lake BIOS can be set as default apart from the parameters below:

Onboard Video Option ROM = Legacy

Boot Mode Select = Dual or Legacy

Secure Boot=Disabled

## AlmaLinux (kernel 4.18.0-240.22.1.el8\_3.x86\_64)

We have a library of iso's on a Windows 10 system. We use [belenaEtcher](#) to create a bootable USB stick from the iso as [rufus](#) has been problematical for older Linux versions.

Boot the USB stick and go through a normal installation process. When requested to reboot do not remove the USB stick until rebooting has been displayed. On reboot complete the process and log in.

The default screen resolution is 1024\*768 and this is the maximum reported by the OS. To resolve this use [cvt](#) and [xrandr](#) to define the screen characteristics for the current session then create/update [/etc/X11/xorg.conf](#) to make the settings automatic for each login. We do not use [gtf](#) as [cvt](#) is more accurate. In the example below, our monitor is 1920x1080@60hz.

[#xrandr](#) ! Output the name of the physical display connection. In this example it is VGA-1.

[#cvt 1920 1080 60](#)

[# 1920x1080 59.96 Hz \(CVT 2.07M9\) hsync: 67.16 kHz; pclk: 173.00Mhz](#)

[Modeline "1920x1080\\_60.00" 173.00 1920 2048 2248 2576 1080 1083 1088 1120 -hsync +vsync](#)

[#xrandr --newmode "1920x1080\\_60.00" 173.00 1920 2048 2248 2576 1080 1083 1088 1120 -hsync +vsync](#)

[#xrandr --addmode VGA-1 1920x1080\\_60.00](#)

[#xrandr --output VGA-1 --mode 1920x1080\\_60.00](#)

[/etc/X11/xorg.conf](#) ! To be created or modified with the following so screen resolution is set at login.

[Section "Monitor"](#)

[Identifier "VGA-1"](#)

[Modeline "1920x1080\\_60.00" 173.00 1920 2048 2248 2576 1080 1083 1088 1120 -hsync +vsync](#)

[EndSection](#)

[#chmod +x /etc/X11/xorg.conf](#)