

# Driving 5K Monitors

Jupiter Research



As laptops and small/Ultra Small form factor computers continue to grow in popularity, chip manufacturers continue to expand the capabilities of the onboard graphic processing units (GPUs) which are a part of their CPU architecture. Where we were limited to a single 4K monitor just a few years ago, now we can drive multiple signals (in some cases) with resolutions up to 8k. And while separate GPU cards can be utilized in full sized computers, many AV installations demand small or ULTRA small (USFF) form factor computers which have higher resolution capabilities.

For GPUs to support 5K there are a few considerations:

- On board Intel GPUs
  - Older CPU's with onboard GPUs (greater than 3 years old) will not support 5K but will likely be able to do a 4K variation of 21:9 aspect ratios. (3440x1440, 3840x1620, 2560x1080) These Intel models would have older (lower) model numbers than the ones described in the *Current Models* list below.
  - Newer Intel models (less than 2 years old) support 4K60 and may or may not allow you to set them for 5K30 which is a lower overall bit rate. The inconsistency seems to come from the overall capabilities and seeming lack of flexibility of the Intel Graphics Command Center software as opposed to the hardware. Some computers, however, have partnered with Nvidia to drive the onboard GPU and in general, NVidia software seems to be more flexible when creating custom resolutions.
  - The newest Intel models which are listed below in the *Current Models* list should present no issues and work right out of the box. You should just be able to plug in with USB Type C or DP and get 5K on screen right away. (\*HDMI only supports 4K60 or possibly 5K30 if the onboard GPU software supports it.)
- Separate GPUs
  - While many newer GPU cards should work, there is such a broad spectrum of GPU cards that it is hard to quantify which support 5K and which do not support 5K.
  - We have found NVidia® software and hardware makes it very easy to create custom resolutions should they be needed to drive 5K. On board.
- Apple® GPUs
  - The newer Apple M1 chip equipped machines have no issues driving 5K resolution monitors.
  - One issue we have seen which may be more related to OS version was that on some machines, the 5120x2160 resolution was not exposed. To that end, there are third party software programs which can be used to easily set a custom resolution.
- Other AV Hardware. (Extron, Crestron, TVOne, Brightsign, etc.)
  - None of the AV hardware options which we have researched currently support native 5K60.
  - Some may be able to create a custom resolution in the 5K30 range.

In the case of any products other than the ones Jupiter sells; testing/evaluation would be the responsibility of the partner. Jupiter can assist in testing/pre-qualification of hardware.

Current Intel model computers with on board GPU's which support 5K+ monitors:

- i7 Product Collection [11th Generation Intel® Core™ i7 Processors](#), Processor Graphics <sup>†</sup>Intel® Iris® Xe Graphics
- i5 Product Collection [11th Generation Intel® Core™ i5 Processors](#), Processor Graphics <sup>†</sup>Intel® UHD Graphics 750
- i3 Product Collection [12th Generation Intel® Core™ i3 Processors](#), Processor Graphics <sup>†</sup>Intel® UHD Graphics 730

## Summary

- i7 11th gen or later come with Iris Xe graphics which can drive 8k.
- i5 11th gen or later come with UHD Graphics 750 which can drive 8k
- i3 12th gen or later come with UHD Graphics 730 which can drive 8k



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