



EFI Type 2 DFE For Professional Imaging Products and the CPU Processor Performance per Socket Calculations in draft 2 of the V3.0 Energy Star for Imaging Equipment Specification

EFI fully supports EPA's decision to classify our Xeon based DFEs (current models EFI NX Premium Gen I, EFI NX Premium Gen II, and EFI NX Premium Gen III) as Professional DFEs. And EFI understands EPA's desire to create a definition for Professional DFEs that closely matches the Servers definition from the EPA Energy Star Computer Servers Specification which classifies servers based on a CPU's internal clock frequency and the number of processing cores it contains. In Draft 2 of the Energy Star for Imaging Equipment V3.0, under the definition of Professional Digital Front-end, subsection (ii), this calculation of cores and frequency sets a threshold of 20 for a DFE to be classified as professional. Most of EFI's current Xeon based products do not meet this requirement. This is due to our use of higher internal clock frequency Xeon CPUs which contain fewer cores than a traditional data center/enterprise server. The reason for this choice of Xeon CPUs is driven by the single threaded/stream nature of the Adobe PostScript language (i.e., it is difficult to parallelize a PostScript document so that it can utilize more processor cores). Please note while PostScript itself may not easily lend itself to parallelization, we are able to use the remaining CPU cores to perform other print job processing operations (e.g., color correction, image processing, screening, etc.). But, in order to keep these other processes busy, requires extremely fast PostScript processing, which in turn requires using higher clock frequency Xeon CPUs than would normally be found in a data center. For reference, as the CPU clock frequency increases, the number of cores decreases to keep the CPU within a specific thermal range. Therefore, while it is possible for a 2.4GHz CPU to have up to twenty cores and easily meet the requirement of subsection (ii), most 3.5GHz CPUs will only contain four cores. Please note, while it is possible to get a 3.5GHz CPU with more than four cores, the cost of that CPU and its cooling requirements are extremely high and are not justified for keeping production imaging equipment running at speed. And since the purpose of the "Professional DFE" category is to recognize DFEs that consume more power in the frontend of printing; but ultimately reduce the total power required to print high-speed production jobs by preventing the imaging equipment from entering high-power pause states.

As noted on several occasions, [EFI's Production Fiery Print Servers](#) are tailored in performance to drive professional imaging equipment at their rated speed, keeping the imaging engine from entering a high power pause state waiting for the server to produce additional data. EFI production Fiery Print Server products meet EPA's goal by keeping production imaging equipment running at speed; but these products do not meet the criteria currently proposed in the new Imaging Equipment specification.

EFI would like the EPA to consider deleting subsection (ii) in favor the other requirements already detailed in the other 4 subsections (i), (iii), (iv), and (v).

If the EPA decides to keep subsection (ii), we would propose that the Processor Performance limit be put at 14 or lower to allow the use of lower core, higher frequency CPUs.