

Speed-up Options and Good Practice

First you must understand that when doing phased array and displaying the data as BCD&S scans, the computer processor is being highly stressed because there is so much calculation to be done. Therefore you need to be aware of this and apply practices that will limit the stress on the processor - this is true for all makes of phased array system. Here are a few tips:

- a) Enable **Online Max speed** in **Setup - Configuration – Misc**. This will display the C-Scan as a non-volume corrected view *during data collection*. When the file is then opened for analysis the view will automatically be corrected and displayed as a true depth C-scan – this saves lots of processor power. When using this control, the system automatically limits certain imaging/display functionality while collecting data in order to optimise processor use. All functionality is restored when the file is opened for analysis.
- b) (*TD Handy-Scan only*) Enable **Data Limits (Samples)** in **Setup – Configuration – Misc**. and choose 150, 300 or 600 samples (300 is probably best. Note : Omniscan down samples to 340 samples by default). This will limit the amount of displayed data samples to a maximum of the chosen value regardless of what the collection digitization frequency was set to. This control frees up the processor a lot and dramatically increases the speed at which you can scan. **Data Limits(Samples)** will reduce the displayed data resolution (but probably within an acceptable range - check procedure requirements and verify detection ability if required)
- c) Display as little data on the screen during data collection as possible – perhaps only a ‘C’scan and an A-scan from 1 channel and then change this to a more complex view later for data analysis.
 1. Also consider reducing the screen resolution to 800x600.
 2. Change the screen colour resolution to 16 bit. (you will actually see no difference in the amplitude or depth colours)
- d) Keep the gate to the minimum required.
- e) Be mindful of the amount of focal laws being generated and keep these to a minimum – the more focal laws, the more the processor has to work.
- f) Increase the PRF
- g) Switch image filtering off during data collection – this will be done automatically if Online Max Speed is used.
- h) Do not set the digitization frequency too high – it is usual to use 5 times the probe frequency for PA and 100Mhz for ToFD. The digitization frequency may be lowered with acceptable results but be mindful of the code requirements.
- i) Do not use averaging for PA – it is not usually needed for PA (only for ToFD) – this slows the system down dramatically.

I hope you will try these suggestions and know you will notice the increase in speed but do not expect the same kind of speeds that are achieved with only ToFD or conventional probes. Consider this: A linear speed of 20 or 30mm per second using a fixed offset (no raster pattern) but covering the whole weld in one scan is still faster than manual scanning using 3 separate probes in a raster pattern – especially if defects are found.