

# *Super* FILTER 4.0 Professional Vs Standard

Super FILTER ver 4.0 Standard is offered for most basic filter design tasks. The Professional version is for complex filter design and is being used by industries like Sony, Philips, ATT, Alcatel, Cisco Systems, AMD, AD, Boeing, TI, NASA and others while the Standard version is for small firms or individuals. The Optimizer is an expert tool for gaining a technological advantage.

## **Features of the PROFESSIONAL configuration that go beyond the STANDARD:**

- Automatically does the GDT equalization of an Analog or Digital filter.
- And therefore reduces the group delay distortion (GDD) and improves the response of the filter.
- Automatically selects the best fit Opamp from the commercial product OpAmp library and shows its performance effect in all graphs. (The Opamp library is included in the STANDARD).
- Impedance Matching - allows matching a stage to the next stage or to any arbitrary impedance. Smith charts and Return Loss analyses can simulate the reflection coefficient with 4 options: 50 Ohm; 600 Ohm; Using R1 or R2 within the stage; Using previous stage Zout or next stage Zin.
- Return Loss – Graphic analysis of the Input and Output Return Loss. The Return Loss analysis allows measuring the impedance matching at the input and the output of each stage.
- DSP optimization of coefficients of IIR or FIR filters saves in register length by optimizing each coefficient by rounding or truncating to best fit the ideal response.  
Quantization errors are critical in some designs. The optimizer rounds or truncates the polynomial coefficients of either IIR or FIR filters to best fit the ideal response. You specify the register type you use Fix or Floating Point and the length of each numeric field and the optimizer will round or truncate the coefficients to minimize the quantization error. It is possible to export the coefficients of the digital filter for programming the DSP in a binary/hexadecimal code.
- Oscilloscope analysis tool for time domain test measurements with new advanced triggering options. One Shot – this option enables you to simulate the response of the filter running once. Trigger Every [Sec] – this option enables you to repeat and store the response of the filter to an ongoing signal. This

option can be useful to capture an eye pattern of a modem filter with the response to a binary or multilevel digital input signal.

- Spectrum analysis tool for frequency domain test measurements. Includes a Fast Fourier Transform (FFT) with increased window size of up to 2097152 points.
- Allows entering the signal source for representing analog, digital or binary data sources like FSK and PSK sources with Manchester Encoding or a user-defined signal from capturing a real data sequence using a logic analyzer. Then graphically analyzing the filter's response; equivalent to prototyping using an oscilloscope or a spectrum analyzer.
- What If Tool - Allows changing the value of resistor, capacitor, inductor or operational amplifier and view the immediate response for the change in the frequency domain, time domain, impedance graphs.
- Custom graph permits entering a function; enabling analyzing non-standard parameters such as admittance, transfer-impedance, transfer-admittance, etc. For example you may define to plot  $Y = 20 \cdot \log(V_{out2}/I_{in3})$  Versus the frequency domain.

**What If Tool** – This new tool allows you to change the values of any component in your design and get graphic response when you type a new value.

