



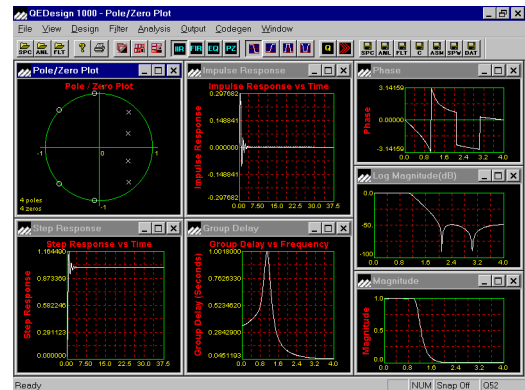
17330 Brookhurst St., Suite 140, Fountain Valley, CA 92708
 Phone: 714-378-5805 / Fax: 714-378-5985
 email: dsp@mds.com / web URL: <http://www.mds.com>

QEDesign 1000

QEDesign 1000 is an **easy to use** digital filter design package for Microsoft's **Windows 9x and NT**.

It designs **FIR and IIR** filters. FIR filters can be designed using the **Window or Parks McLellan** (equiripple) methods. Many choices of window are supported. IIR filters can be designed using **parallel or cascade structures**, with **direct form I or direct form II** based on a choice of **Butterworth, Bessel, Tchsebshev, or Elliptic** designs: **bilinear and impulse invariant design** methods are supported.

Filter design requires very **accurate calculations**: QEDesign uses **64 bit floating point arithmetic** throughout, with **128 bit for critical design areas**. It also correctly takes account of **quantization of coefficients** and can model the effects including scaling and grouping to minimise quantisation error.



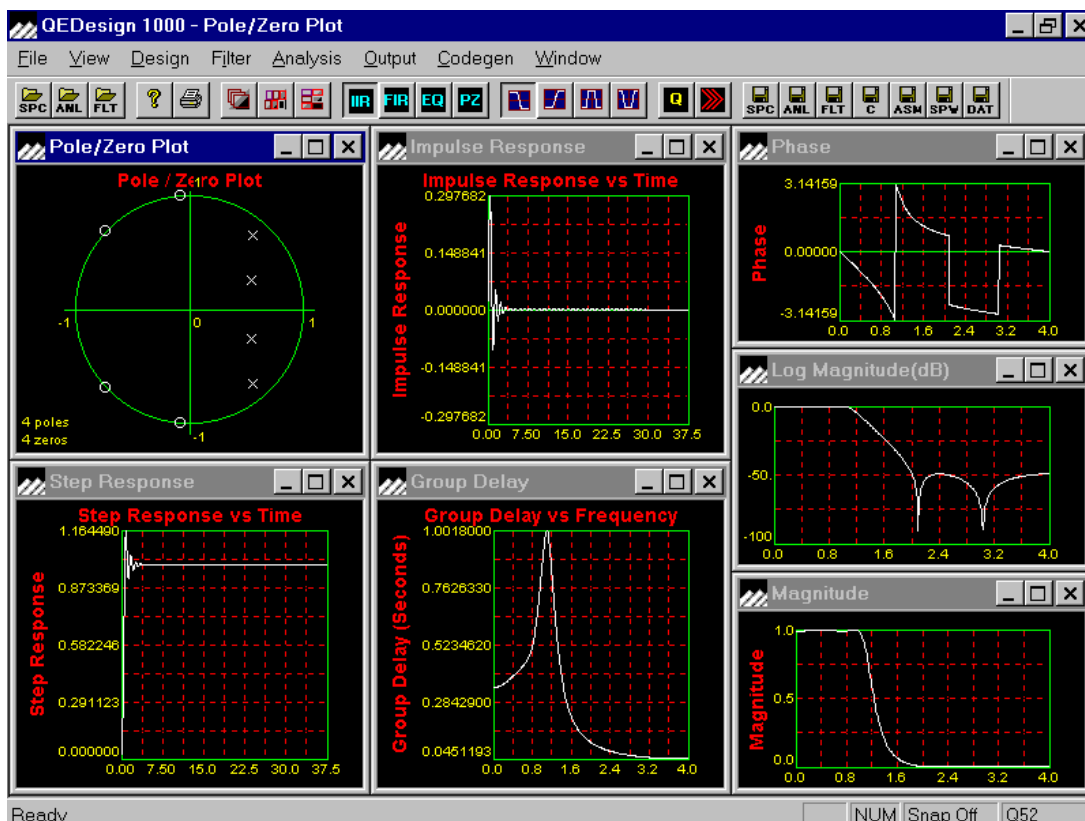
Features:

- FIR and IIR filter design
- cascade and parallel IIR forms
- window and equiripple FIR design
- coefficient quantization and modelling
- **optional DSP code generators**
- **arbitrary magnitude** and group delay designs
- **raised cosine** FIR window designs
- **z domain and s domain filter specification**
- **graphical design using pole/zero placement**

A detailed **product booklet**, and **free demonstration** software, are available: send email to: qedesign_book@mds.com or phone (714) 378 5805.

Details and demo software are also available on line:

<http://www.mds.com/software/qedesign.htm>



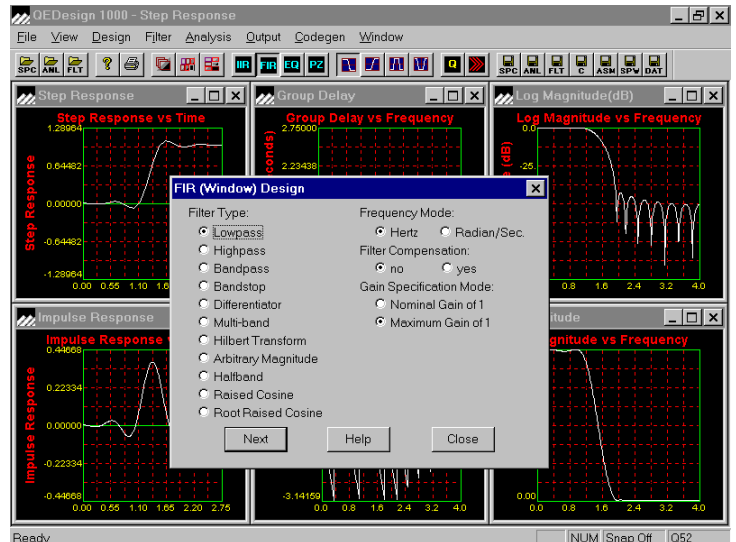
QEDesign 1000 data sheet

FIR filter design

QEDesign 1000 supports FIR filter design by the **window** and **Parks McLellan** (equiripple) methods.

Many window functions are available including Hanning, **Hamming, Blackman, Harris, Kaiser and cosine** windows. FIR designs include **arbitrary magnitude, hilbert, halfband, and raised cosine** shapes. Window filters **up to 8192 coefficients** can be designed.

The Parks McLellan design has choices to allow **modification of the 'equiripple' characteristic** and to **specify roll off**. The program uses extended arithmetic - essential in the design of long filters. Parks McLellan filters can be designed with **up to 4089 coefficients**.



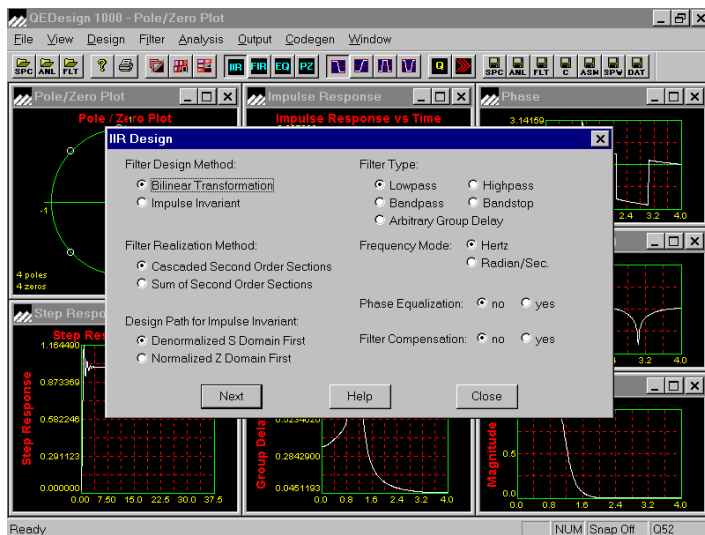
IIR filter design

QEDesign 1000 supports IIR filter designs using the **bilinear** and **impulse invariant** methods, based on **Butterworth, Bessel, Tschbyshev and Elliptic** prototypes.

IIR designs can be **cascade or parallel**, using either **direct form I or direct form II** implementation.

IIR filters can be specified by band attenuations, or through **direct input of z domain or s domain parameters**.

IIR filter orders up to 80 (low and high pass) **or 160** (band and arbitrary group delay) can be designed.



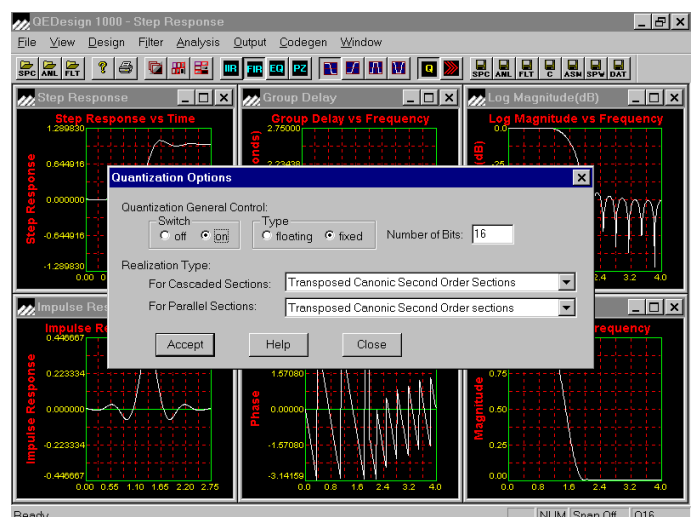
Coefficient quantization

QEDesign 1000 handles **coefficient quantization** from **8 to 32 bits** in **fixed and floating point** format, and models the effects of quantization on the filter's actual response.

Filters can have nominal or maximum gain of 1, and **scaling for quantization effects**.

For selected filter types the **transition regions** can be specified.

Output **coefficient files are ASCII text**. Optional **DSP assembler and C code generators** are available.



QED1000 data sheet 271099.fm - preliminary, subject to change



17330 Brookhurst St., Suite 140, Fountain Valley, CA 92708
Phone: 714-378-5805 / Fax: 714-378-5985
email: dsp@mds.com / web URL: <http://www.mds.com>