

# FFT Processors

## Description

The AR-400 Series Fast Fourier Transform (FFT) processors are constructed from modular building blocks, each block providing data storage and arithmetic processing for one or more stages of a multi-stage pipeline FFT.

One or several of these modules, with supporting address generators, micro-instruction memory and timing/control circuits, are configured to provide a completely self-contained FFT processor to meet customer requirements.

FFT Processors are available in two speed ranges. Model 400 will accept input data at rates up to 2.6 MHz. Model 420 will accept data at rates up to 3.3 MHz. Output samples are provided synchronously with each input sample, where the outputs are simply delayed by the length of the pipeline.

While the standard units are designed for digital input and output (bit parallel, word serial), custom interfaces are available that will provide for analog input and/or outputs. In addition, pre-processing or post-processing options are available including windowing, output averaging or filtering, data formatting, etc.

## Specifications

<b>Modularity</b>	FFT or IFFT sizes up to 4096 complex points.
<b>Data Interfaces</b>	<i>Standard:</i> bit parallel, word serial, differential data with strobe, per RS-422. <i>Optional:</i> A/D Converters, D/A Converters, level converters, computer or signal processing interfaces.
<b>Input Data Rate</b>	<i>Model 400:</i> asynchronous, up to 2.6 MHz. <i>Model 420:</i> asynchronous, up to 3.3 MHz.
<b>Input Format</b>	<i>Standard:</i> single-channel, complex data. <i>Optional:</i> single-channel, real or dual channel real.
<b>Output Formats</b>	<i>Standard:</i> complex words, no averaging, natural order. <i>Optional:</i> combinations of the following: real outputs (magnitude or magnitude squared). averaged or filtered data.
<b>Scaling</b>	<i>Standard:</i> fixed scaling between stages. <i>Optional:</i> automatic down-scaling between stages (block floating point).
<b>Data Precision</b>	16 bits
<b>Self Test</b>	Built-in test equipment to isolate faults to a single FFT module.