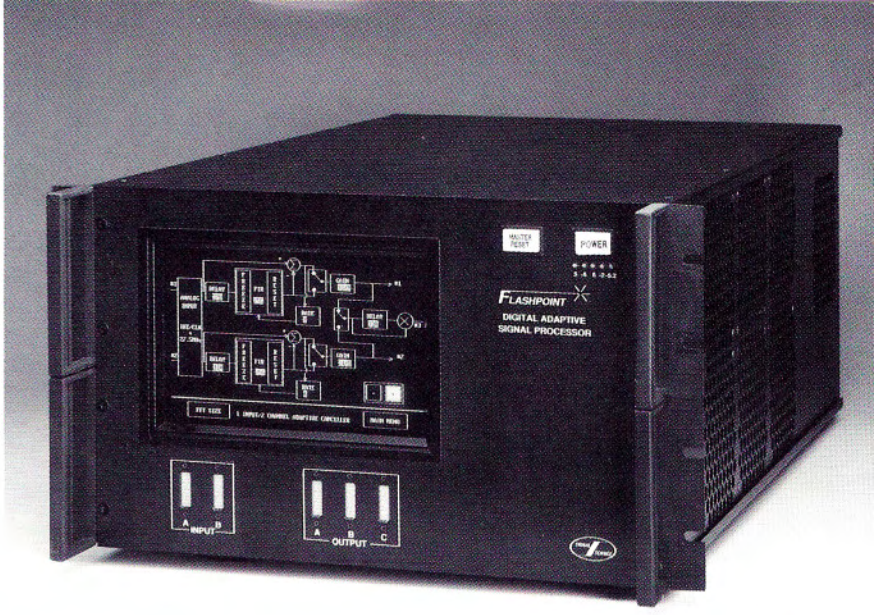
SIGNAL SCIENCE

FLASHPOINT

Digital Adaptive Signal Processor



The FLASHPOINT processor is a complete system for high speed digital signal processing. All processing is done in real time, with continuous analog or digital signal input and output. It is totally self-contained, and comes configured to perform adaptive processing for interference cancellation, adaptive equalization, and spectral analysis. It can be operated as either a single or dual channel processor, and is controlled through a multifunction graphical touch screen interface.

FEATURES

- Processes analog signal bandwidths to 12 MHz (to 30 MHz sample rate)
- Standard algorithms include single and dual channel LMS adaptive filtering, dispersion directed adaptive equalization, and spectrum analysis.
- Filter sizes to 32,768 taps (better than 1 kHz resolution at full bandwidth)
- Built-in hardware delay-and -multiply circuit for automatic signal detection
- Real time operation for signals at baseband or IF
- Graphical touch screen control
- Based on Sharp LH9124/9320 DSP chip set
- Over 10 billion block floating point operations per second and 48 MBytes of memory
- Modular architecture allows custom software or hardware implementations

APPLICATIONS

- Enhancement of signal detection systems by reducing interference
- Cancellation of strong interference using an independent reference of the interference
- Enhancement of wideband spread spectrum signals by cancelling narrowband co-channel interference
- Blind PCM signal equalization
- Automatic multipath distortion correction
- Enhancement of narrowband signals in a noisy environment

SPECIFICATIONS

Analog I/O

Bandwidth (max.)	12 MHz
Level (nominal)	0 dBm
A/D Resolution	10 bits
D/A Resolution	12 bits
Output scaling	0 to 96 dB

Digital I/O

Format	Parallel, TTL or ECL
Resolution	12 bits

Architecture

The system is designed around small DSP modules, each of which is comprised of a DSP chip set plus memory. The modules are interconnected on a motherboard for cascaded processing. An additional board provides A/D conversion, digital interface, and signal distribution.

Processing Performance

Over 10 billion block floating point operations per second.

Memory	>48 MBytes
Max FFT size	64K
Max FIR taps	32,768

Standard Algorithms

Adaptive filtering

Standard LMS:

1 channel, 1 input
2 channel, 1 input
1 channel, 2 input

Split tap LMS:

1 channel, 1 input
2 channel, 1 input

Dispersion directed algorithm:

1 channel
2 channel

Spectrum analysis

Real time:

1 or 2 channels

Custom Modifications

The modular architecture allows custom software or hardware implementations. Custom applications could include:

Adaptive or fixed filters
Transmultiplexer
Polarization combiner

Control

Front panel control	Graphical touch screen
Aux. control	RS-232

Front Panel

Power switch
Master Reset button
Signal level meters
Touch screen control panel

Rear Panel

Channel A and B analog in
Channel A, B, and C analog out
Channel A and B digital in
Channel A, B, and C digital out

Physical

Standard 19" rack mount
10.5" height
28" deep

Power

117 VAC 20A

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