SPECTRAL DYNAMICS

PANTHER SPECTRAL DYNAMICS

Modern Vibration Test Control System

PANTHER COMPLETE MISO SOFTWARE SUITE™

MISO CONTROL SOFTWARE *(Multiple Input Single Output)*

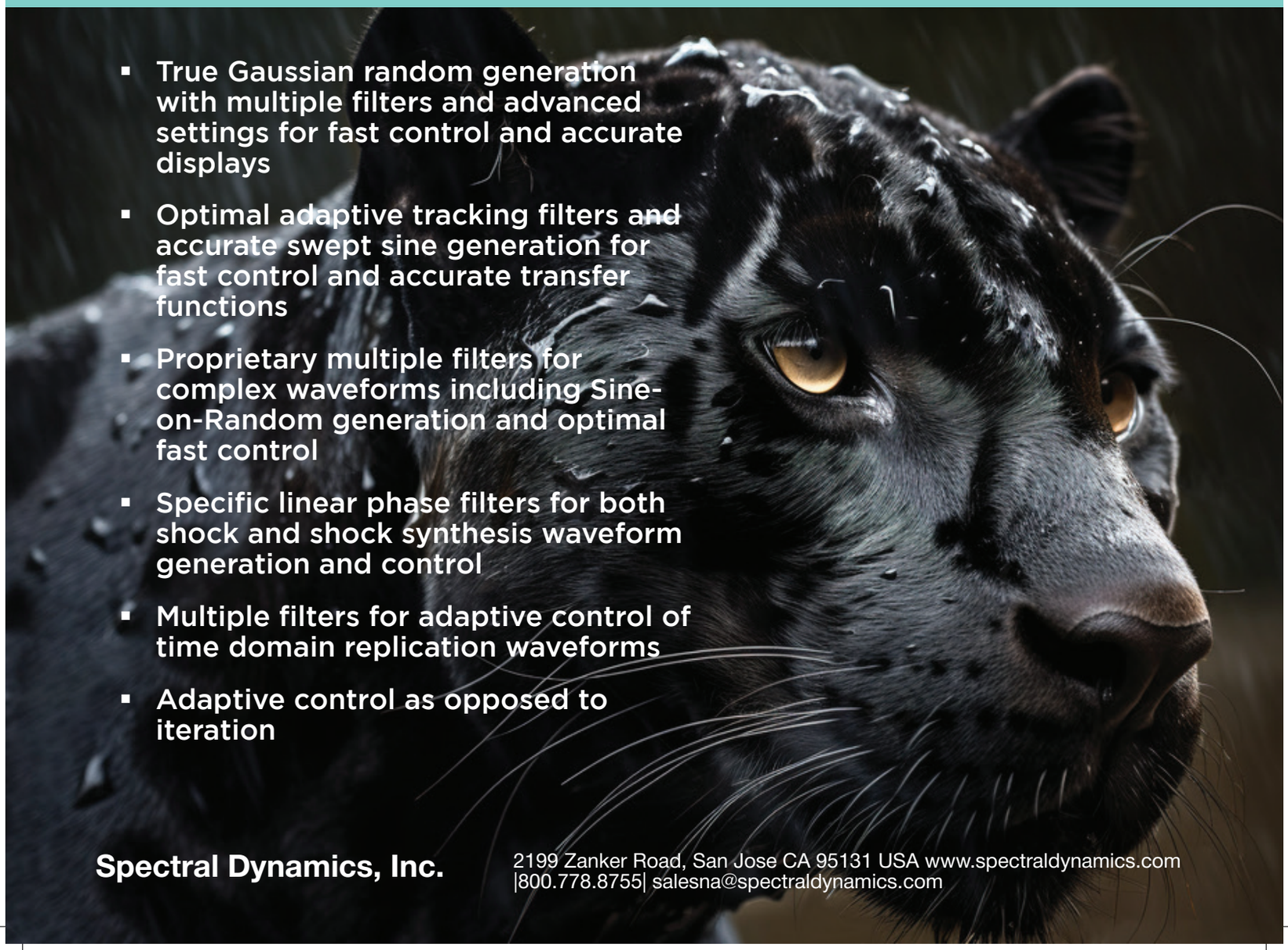
- Sine
- Random
- Shock
- Sine on Random
- Random on Random
- Shock Synthesis
- Road Simulation

ANALYSIS SOFTWARE

- FFT
- 1/n Octave
- Statistics
- Modal Data Acquisition
- Playback
- Transient Capture
- Rotating Machinery

SYSTEM HARDWARE

- 24 Bit resolution > 110 dB Dynamic Range
- 262,144 Samples per Second
- IEPE, TEDS, 8 Gain Ranges, Auto Gain
- Phase Synch < 1 degree
- Expandable to 32 channels fully phase synched accurate to < 1 degree



- True Gaussian random generation with multiple filters and advanced settings for fast control and accurate displays
- Optimal adaptive tracking filters and accurate swept sine generation for fast control and accurate transfer functions
- Proprietary multiple filters for complex waveforms including Sine-on-Random generation and optimal fast control
- Specific linear phase filters for both shock and shock synthesis waveform generation and control
- Multiple filters for adaptive control of time domain replication waveforms
- Adaptive control as opposed to iteration

Spectral Dynamics, Inc.

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Versatile Test Capabilities

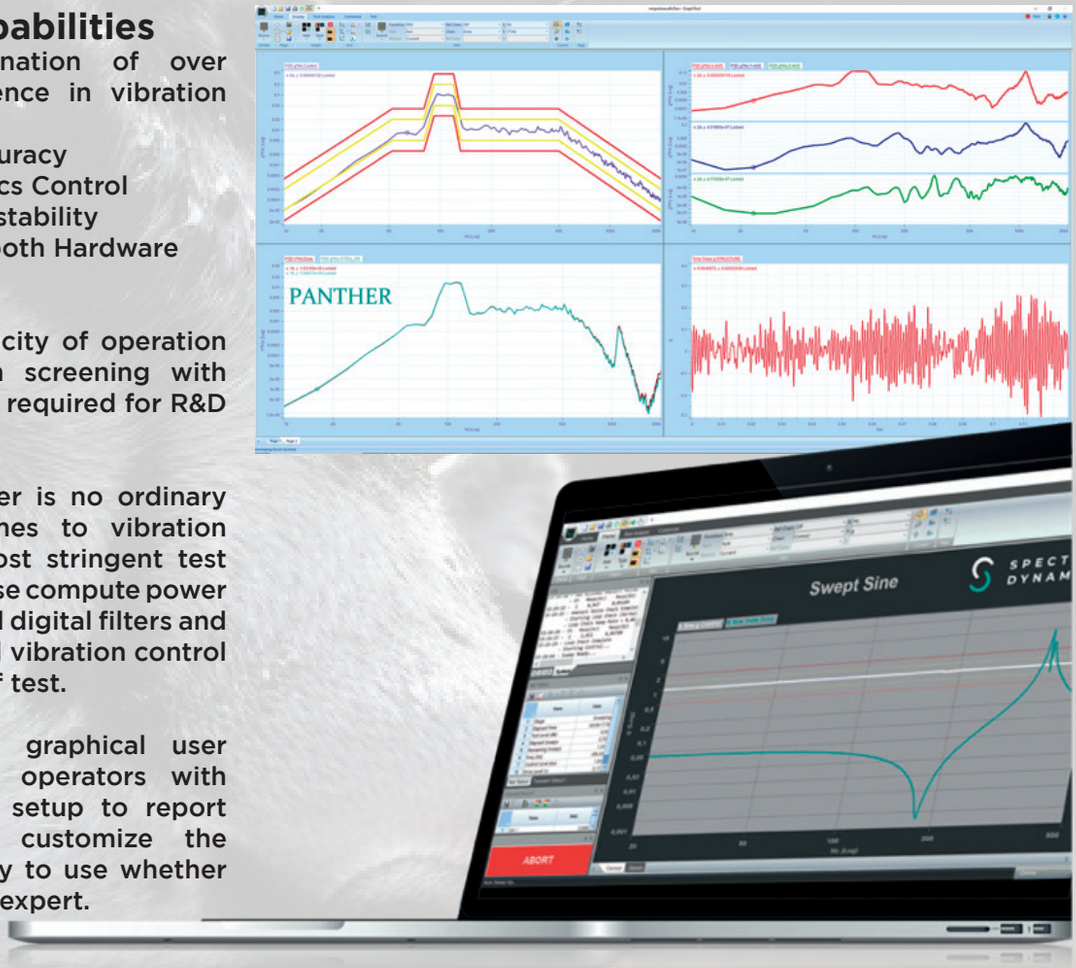
Panther is the culmination of over eighty years of experience in vibration instrumentation.

- Extraordinary accuracy
- Optimum Dynamics Control
- Unparalleled adjustability
- Expandability in both Hardware and Software

Panther combines simplicity of operation required for production screening with the power and versatility required for R&D prototype testing.

Superior Control: Panther is no ordinary controller when it comes to vibration testing. To meet the most stringent test requirements, the immense compute power allows separate advanced digital filters and patented adaptive digital vibration control methods for each type of test.

User Friendly: Panther graphical user interface provides test operators with friendly operation from setup to report preparation. You can customize the interface so that it's easy to use whether you are a new user or an expert.



TECHNICAL SPECIFICATIONS

Input Subsystem		Output Subsystem	
Input channels	8 channels expandable up to 32	**Dynamic Range**	> 100 dB
Dynamic Range	>110 dB	**DAC**	20 Bit
ADC	24 Bit	**Max Output Amplitude**	+/- 12 volts Peak
Amplitude Accuracy	± 0.20% of value or ± 0.03% of full scale whichever is greater	**Max Output Current**	16 mA
Amplitude Linearity	± 0.20% of value or ± 0.03% of full scale whichever is greater	**Max Attenuator Rate**	Software Selectable
Voltage Ranges **Auto Ranging**	± 12 V to ± 0.5 V in 8 steps Yes	**Max Output Rate**	262,144 samples per second

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Input Subsystem

Overload Detection	Full scale on all channels, analog and digital detection
Voltage Coupling	AC or DC or GND
IEPE Power	4 mA (24V max into open circuit)
Max Rated Input Signal	± 35 Volts Peak
Max Sampling Rate	262,144 samples per second
Sampling Interval	Simultaneous on all channels
Frequency Accuracy	± 5 ppm
Freq. Range Reduction	Digital decimation and filtering using on-board FPGA and DSP
Anti-Aliasing Filters **Analog Filter** **Cutoff Frequency** **Alias Attenuation** **Pass Band Ripple** **Digital Filter** **Cutoff Frequency** **Stop Band Atten.** **Pass Band Ripple**	 Fixed @ 120 KHz > 105dB Within ± 0.10dB Variable > 96dB @ Nyquist frequency Within ± 0.15 dB
Channel-Channel Match **Amp** **Phase Single Unit** **Crosstalk** **Phase between Units**	 Better than ± 0.25dB Better than ± 1.0 degrees to 100 KHz < - 100dB Better than ± 1.0 degrees to 100kHz
Offset Removal **Type** **Accuracy (compressed)**	 Digitally Controlled Better than ± 0.5% of full scale for each input range
Input Impedance	1 M Ω
Connector Type	BNC
Connection Type	Pseudo-differential, 10 Ω to system ground, Lo side return
Calibration	Internal digital calibration, NIST referenced
Calibration Constants	Digital Calibration Constants stored in ASCII file
TEDS Compliant	Yes

Output Subsystem

Image Attenuation	< 96 dB
Frequency Accuracy	± 5ppm
Freq Range Reduction	10 stage smoothing filters
Reconstruction Filters **Cut-off Frequency** **Image Attenuation** **Pass Band Ripple**	 1 Hz to 25 kHz auto select > 96 dB Within ± 0.15 dB
Output Offset RemovalType Accuracy **Stopband Attenuation**	Digitally Controlled > ± 0.5% of Full Scale < -100 dB
Output Impedance	60 Ω
COLA Output Level	± 1V
Output Type	Pseudo-Differential 10 Ω to System Ground Lo side return
Output Cable	Designed to drive up to 50 feet of shielded 50 Ω coaxial cable
Calibration	Automatic Internal digital calibration, NIST referenced
Calibration Constants	Digital Calibration Constants stored in ASCII file
Host to Unit Communication	USB or Ethernet

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