

GEN III DRIVER ELECTRONICS

CORE TECHNOLOGY PROFILE:

Xinetics has developed a new breed of driver electronics utilizing a custom hybrid output amplifier. This technology results in significantly lower power, small volume, and lower cost. This technology utilizes a 48-channel modular driver board and a chassis backplane that also acts as the digital controller. This design is well suited for large channel count systems giving a compact footprint with low dissipated power. The boards reside within a standard 4U subchassis that is 19" wide. A 19" wide rack will be able to contain up to 480 channels and also includes all necessary power supplies within a single chassis. The basic chassis is a standalone unit that can be used to build up larger systems.

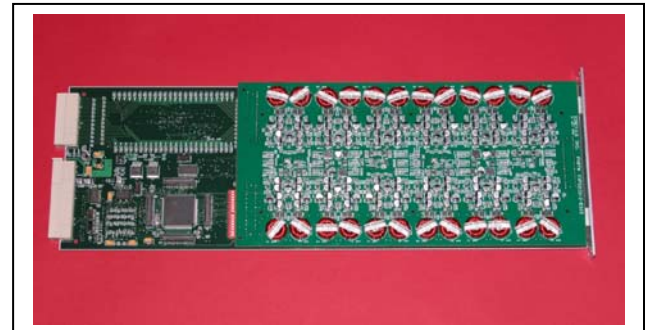
An extremely compact design can be generated with this system. Within a single 4U subchassis Xinetics can configure all driver cards, interface and power supplies. Such a system provides an amazingly compact design while still maintaining the high bandwidth requirements of modern adaptive optics systems.

HVA Description:

- ◆ Data buffer provides 60 Mwords/sec throughput
- ◆ Fully pipelined
- ◆ Supports modified ChannelLink and SOR422U Interface
- ◆ sFPDP 2.4 Gbit/sec Fiber Interface Under Development
- ◆ Dual port RAM store complete frame.
- ◆ 16-bit DAC resolution
- ◆ DC to 20 kHz bandwidth.
- ◆ 93% theoretical efficiency with only 1-2 W/ch power dissipation

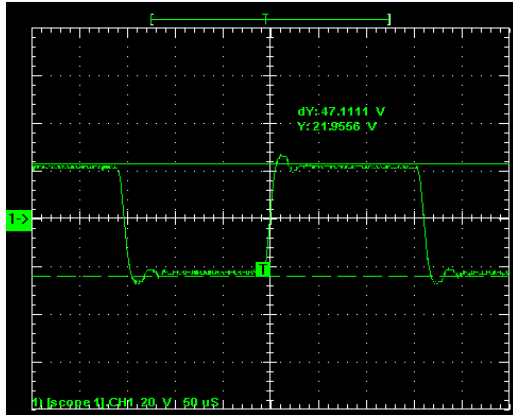
Chassis Controller Description:

- ◆ Accepts control signals and 16 bit data for 480 actuator channels from the signal source.
- ◆ Provides differential to single-ended signal conversion of command signals to avoid system level grounding and signal integrity problems.
- ◆ Utilizes a Eurostandard 4U card for both Controller and Driver
- ◆ Driver contains 48-channels

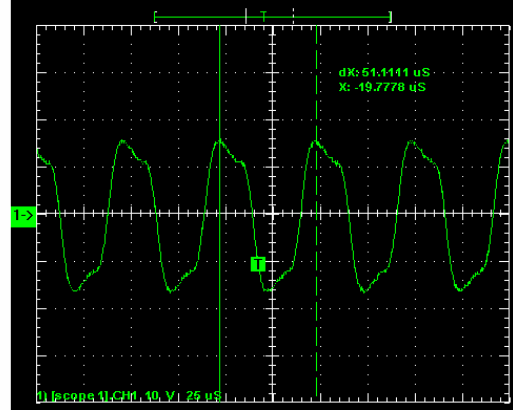


Rack Description:

- ◆ Power supplies +5 VDC, ± 15 VDC, and \pm High Voltage DC (40 and 70 VDC) are sized for the channel number, actuator capacitance, and drive voltage.
- ◆ 4U chassis contains 10 driver cards
- ◆ Chassis can contain up to 480 channels within a single rack
- ◆ Full power supply contained within the rack with LCD status display
- ◆ 349-ch System contained with 3/4 of 4U subchassis with remainder containing power supplies. Complete system contained within 4U rack mount.



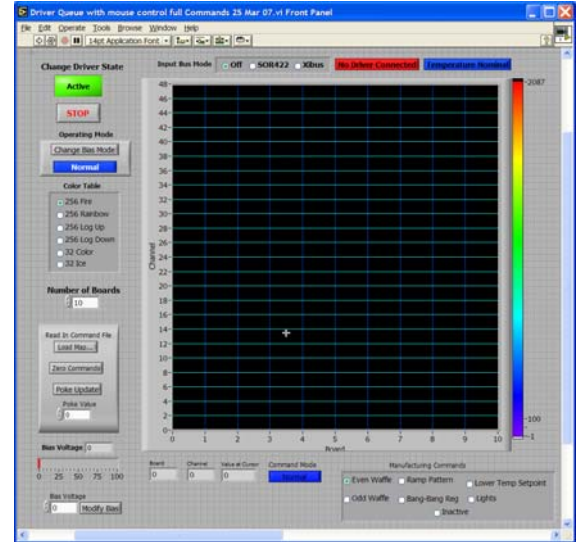
10 microsecond risetime at +/- 40V into 1.87 microfarad load



20 kHz response at 30 V PP into a 1.87 uF Load

Drive Characteristics

Current Output	±3.3 amps peak
Voltage Output	± 30 volts
Bias Voltage	0 to 85 volts
Bias Current	± 5.5 amps
System Resolution	16 bits
Input Bus Clock	30 MHz (33 nsec)
Framerate	20 kHz (50 µsec)
Frequency Response	20 kHz ± 0.1 dB (600 nF)
Bandwidth	14 kHz
DM Protection	Current limit & Slew Rate monitor modes
Diagnostic Interface	RS-232 @ 115.2 kBaud



System Speed

Input Bus Speed	62.5 MHz (16 ns)
Amplifier Processing Latency	40 µsec
Total Latency (Full Frame)	18.6 µsec (53.63 KHz)
Frequency Response (600 nf)	31 KHz ±0.1 dB
Frame Rate (384 channels)	62.5 MHz / 384 channels)
Amplifier Settling Time	9.1 µsec (600 nF load)

