Fast, Accurate WaveShape Analysis in an Easy-to-use Oscilloscope
The WavePro 7000A Series oscilloscope offers the sophisticated analysis capability of a top line oscilloscope with the all-round utility of a general purpose instrument. In 1 GHz to 3 GHz bandwidth applications, the WavePro delivers fast, accurate measurements associated more often with high-end lab oscilloscopes. Common Jitter and Timing measurements for clock and timing analysis enhance its capabilities. Wrap this performance in a very attractive price, and the LeCroy WavePro oscilloscope is the ideal solution for your test needs.

**Performance Highlights:**

- 10 GS/s single-shot sample rate on all channels (20 GS/s maximum) to capture signal details
- Up to 3 GHz with 50 Ω and 1 MΩ inputs
- Acquisition of up to 100 million data points to maintain high sampling rates and complex signals
- Over 80 jitter and timing measurements are standard
- 1 ps jitter noise floor
- Unique processing chain that enables the addition of customized measurements in the processing stream

1. **Deep Memory** – Offers 10 Mpts per channel standard memory. Options extend all the way up to 100 Mpts.
2. **Display** – Large 10.4” SVGA touch screen. View waveform details and measurement results without crowding.
3. **Accessories** – Passive, active, differential, and current probes as well as O/E converters can be connected to a WavePro oscilloscope.
4. **High Impedance Input** – All WavePro channels can be used at either 50 Ω or 1 MΩ, both selectable on the screen.

5. **X-Stream Technology** – Proprietary technology that enables data processing that is 80–150 times faster than other oscilloscopes.

6. **Auto Setup** – One button automatically calls up a signal on the display.

7. **Analog Persistence** – Switches between analog view and digital view so you can fully explore the signal’s modulation.

8. **QuickZoom** – Automatically displays 10x magnified traces of all signals on multi-grids.

9. **Wavepilot** – Controls give easy access to powerful signal analysis capabilities so you can gain insight and trace problems directly to their source.

10. **Dedicated Vertical Controls** – Each channel has its own volts per division (V/div) and offset control knobs. You can control any channel by turning the knobs, eliminating the need to multiplex a single control across all four channels.

11. **Dedicated Cursor Controls** – Allows instant adjustment — even after you leave the cursor setup menu.

12. **Touch Screen (standard)** – Can be used with or without a mouse.

13. **Front access USB 2.0** – Provides convenient access for transferring waveform or setup data to flash memory keys, without the need to reach behind the oscilloscope.
Unleash the Breakthrough Power of X-Stream Technology

X-Stream Technology is an extremely fast streaming architecture that enables high throughput of data—even when the WavePro oscilloscope is performing complex measurements. It does so by eliminating the trade-offs between long memory lengths and quick processing.

It is 80–150 times faster in presenting waveform and math calculations than competitive oscilloscopes. It enables the engineer to insert third party tools into the processing stream, see real-time results on screen without the need to leave the lab and return to your desk PC. Any modifications to the test circuit requiring remeasurement can be done right then, while the set up is still in place.

First-in-class Performance
LeCroy’s proprietary CMOS memory accepts 10 GB/s of data in real time from each SiGe ADC, packetizes it, and speeds the data through dual high-speed pipelines to the CPU. Once in the CPU, LeCroy’s proprietary software algorithms “capture” each packet, and perform many of the required calculations in the CPU’s L1 cache memory.

With X-Stream Technology you can:
- Capture and analyze long records faster than ever before
- Utilize advanced tools for detailed analysis
- Customize your measurement capability

This process eliminates the “fetching” of data and math instructions from RAM to minimize calculation time. It also allows user-created functions and measurements to be inserted using our Advanced Customization software package (XDEV) option.

X-Stream Technology

ADC

Acquisition Memory

Processor and Cache
Standard Application Routines
XDEV Customization

WaveShape Analysis Engine
Customize the User Interface to Meet Specific Needs

X-Stream Technology enables the insertion of user’s custom analysis routines directly into the processing chain of the WavePro oscilloscope. Easily write a Visual Basic script, MATLAB, Mathcad, or Excel function and seamlessly integrate it into the oscilloscope’s processing chain without running “off line,” establish a remote communication between the oscilloscope and another program, create a new reference waveform, or transfer large data files between the oscilloscope and another program.

First, source a customized algorithm.

Insert proprietary calculations into the processing stream. See your parameter or math function updates live on every trigger. You can use all the oscilloscope tools on your custom measurement, including cursors, parameters, persistence display, FFT, or any other oscilloscope capability.

Then load it.

Now display the calculated results.

• Port tools such as filters from your simulation environment into the oscilloscope to compare simulated signals with actual circuit performance. Validate if circuit performance matches the model, and reduce characterization time.

• Build your own user interface. Add push buttons, frames, custom controls.
One-touch Control Equals Frictionless Testing

Large Display for Sharp Trace Images

All WavePro 7000A oscilloscopes models have a 10.4" SVGA touch screen display with a waveform viewing area, (standard).

Powerful Zoom Functions

WavePro oscilloscopes have the ability to create up to eight unique zoom or math traces, each analyzing a different segment of the waveform. Calculations can be performed on the zoomed areas. A Multi-Zoom feature allows you to view time-correlated events, and Auto-Scroll is available to roll through the waveform.

More Data—More Insights

Another unique viewing capability is Histicons—small histogram views that provide a visual indication of parameter distributions. Up to eight Histicons and their accompanying statistics can be displayed simultaneously without adversely affecting the processing time.

Operation of the WavePro oscilloscope is easy and intuitive. The descriptor fields show the oscilloscope settings and status. Touch the screen once to open a setup dialog and change settings. Touch “Measure” and “Horizontal” descriptors to see multiple common timing parameters. Math, histograms, statistics, and other analysis tools are all within two touches.

One-touch Equals Higher Productivity

Adjust the timebase, voltage, and cursors from the front panel knobs or use the most advanced touch screen user interface in oscilloscopes today. Getting to parameter measurements is fast and graphical. It’s highly intuitive and adaptable to a busy engineer’s working style.

Probes

The LeCroy HFP Series of Active Voltage Probes have a versatile, small, and lightweight design with high bandwidth from 1 GHz to 2.5 GHz. The HFP Series include five interchangeable styles of tips to make probing easier than ever. In addition to a traditional straight probe tip, a sharp tip allows easier access to tightly-packed test points and circuit vias.
The WavePro 7000A Series takes WaveShape Analysis options to a new level. The following software packages dramatically expand the capabilities of WavePro oscilloscopes and enable engineers to trouble-shoot circuits in more productive ways.

**Advanced Math Software Package (XMATH)**
It provides more than 30 math functions and 40 parameter measurements.

**Advanced Customization Software Package (XDEV)**
This package allows you to create your own scripts for measurement parameters or math functions using third-party software packages such as Excel, MATLAB, and Mathcad.

**Jitter and Timing Analysis Software Package (JTA2)**
This package shows modulation effects and intermittent signal jitter to track timing changes, and to debug in the time, frequency, and statistical domains. Views like Jitter Track and Jitter Histogram let you see system variability in ways that you have never imagined.

**Master Analysis Software Package (XMAP)**
It provides maximum capability and flexibility, and includes all the functionality present in XMATH, XDEV, and JTA2.

**Digital Filter Software Package (DFP2)**
It lets you add any of a set of linear-phase Finite Impulse Response (FIR) filters. It enhances your ability to examine important signal components by filtering out undesired spectral components such as noise. Use the standard filters or create your own.

**The Disk Drive Measurements Software Package (DDM2)**
This package adds dozens of new disk drive measurements. DDM2, combined with WavePro sequence triggering and SMART Triggers™, offers the perfect solution for failure analysis when testing disk drives.

**Advanced Optical Recording Measurement Software Package (AORM)**
It provides 8 timing and 9 amplitude analysis parameters for characterizing CD/DVD and experimental optical storage systems.

For differential measurements, the WaveLink Series of high bandwidth probes combine with WavePro to complete the measurement system. Best-in-class circuit loading characteristics and exceptional frequency response flatness accuracy maintain signal fidelity through the entire measurement system. AutoColorID lights in the probe handle show the channel trace color to quickly identify which probe is driving which channel. Visit www.lecroy.com for more information.
## Specifications

### Vertical System

<table>
<thead>
<tr>
<th>WavePro</th>
<th>WavePro</th>
<th>WavePro</th>
<th>WavePro</th>
<th>WavePro</th>
<th>WavePro</th>
</tr>
</thead>
<tbody>
<tr>
<td>7300A</td>
<td>7200A</td>
<td>7100A</td>
<td>7300A XXL</td>
<td>7200A XXL</td>
<td>7100A XXL</td>
</tr>
<tr>
<td>Analog Bandwidth (-3 dB, 50 Ω ≥ 10 mV/div)</td>
<td>3 GHz</td>
<td>2 GHz</td>
<td>1 GHz</td>
<td>3 GHz</td>
<td>2 GHz</td>
</tr>
<tr>
<td>Rise Time (Typical)</td>
<td>150 ps</td>
<td>225 ps</td>
<td>400 ps</td>
<td>150 ps</td>
<td>225 ps</td>
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<tr>
<td>Input Channels</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Bandwidth Limiters</td>
<td>25 MHz; 200 MHz</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input Impedance</td>
<td>50 Ω or 1 MΩ</td>
<td></td>
<td>15 pF; 10 MΩ</td>
<td></td>
<td>11 pF with PP005A Probe</td>
</tr>
<tr>
<td>Input Coupling</td>
<td>1 MΩ: AC, DC, GND; 50 Ω: DC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum Input Voltage</td>
<td>50 Ω: 5 V&lt;sub&gt;rms&lt;/sub&gt;; 1 MΩ: 100 V max. (peak AC: ≤ 5 kHz + DC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Channel-Channel Isolation</td>
<td>250:1 at same V/div setting, 40:1 at 3 GHz</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vertical Resolution</td>
<td>8 bits; up to 11 bits with enhanced resolution (ERES)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensitivity</td>
<td>50 Ω (2 mV–1 V/div, fully variable; 1 MΩ: 2 mV–2 V/div, fully variable)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DC Gain Accuracy</td>
<td>±1.5% of full scale; (±1% typical)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Offset Range</td>
<td>50 Ω:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>±700 mV @ 2–4.95 mV/div</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>±1.5 V @ 5–100 mV/div</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>±10 V @ 0.102–1 V/div</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 MΩ:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>±700 mV @ 2–4.95 mV/div</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>±1.5 V @ 5–100 mV/div</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>±20 V @ 0.102–2 V/div</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Offset Accuracy</td>
<td>±(1.5% of full scale + 0.5% of offset value + 2 mV)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Horizontal System

| Internal timebase common to 4 input channels; an external clock may be applied at the auxiliary input | 200 ps/div–10 s/div; RIS mode: to 20 ps/div; Roll mode: up to 1000 s/div |
| Clock Accuracy | ≤ 10 ppm |
| Time Interval Accuracy | ≤ 0.06 / SR + (10 ppm * Reading) (rms) |
| Sample Rate and Delay Time Accuracy | ±5 ppm ≤ 10 s interval |
| Jitter Noise Floor | 1 ps rms @ 100 mV/div (typical) |
| Trigger and Interpolator Jitter | ≤ 1 ps rms (typical) |
| Channel-Channel Deskew Range | ±9 x time/div setting, 100 ms max., each channel |
| External Clock | 30 MHz–1 GHz; 50 Ω impedance; applied at the auxiliary input |

### Acquisition System

| Single-Shot Sample Rate/Ch | 10 GS/s |
| 2 Channel Max. | 20 GS/s |
| Random Interleaved Sampling (RIS) | 200 GS/s for repetitive signals: to 20 ps/div, Upper time/div limit function of sample rate and memory length settings |
| Maximum Trigger Rate | 150,000 waveforms/second (in Sequence Mode, up to 4 channels) |
| Intersegment Time | ≤ 6 µs |
| Maximum Acquisition Points/Ch | (4 Ch / 2 Ch) Max. Segments (Sequence Mode) |
| Standard | 10M / 20M |
| VL – Memory Option | 16M / 32M |
| XL – Memory Option | 24M / 48M |
| XLL versions | 50M / 100M |

### Acquisition Processing

| Averaging | Summed or continuous averaging up to 1 million sweeps |
| Enhanced Resolution (ERES) | From 8.5 to 11 bits vertical resolution |
| Envelope (Extrema) | Envelope, floor, or roof for up to 1 million sweeps |
| Interpolation | Linear or Sin x/x |

### Triggering System

| Modes | Normal, Auto, Single, and Stop |
| Sources | Any input channel, External, Ext X10, Ext/10, or line; slope and level unique to each source (except line trigger) |
| Coupling | DC |
Specifications

Triggering System (continued)

<table>
<thead>
<tr>
<th>Pre-trigger Delay</th>
<th>0–100% of memory size (adjustable in 1% increments of 100 ns)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-trigger Delay</td>
<td>0–10,000 divisions in real time mode, limited at slower time/div settings or in roll mode</td>
</tr>
<tr>
<td>Hold-off by Time or Events</td>
<td>2 ns to 20 s or from 1 to 99,999,999 events</td>
</tr>
<tr>
<td>Internal Trigger Range</td>
<td>±5 div from center</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WavePro 7300A</th>
<th>WavePro 7200A</th>
<th>WavePro 7100A</th>
<th>WavePro 7300A XXL</th>
<th>WavePro 7200A XXL</th>
<th>WavePro 7100A XXL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trigger Sensitivity (edge) (Ch 1-4 and External)</td>
<td>2 div &lt; 3 GHz</td>
<td>2 div &lt; 2 GHz</td>
<td>2 div &lt; 1 GHz</td>
<td>2 div &lt; 3 GHz</td>
<td>2 div &lt; 2 GHz</td>
</tr>
<tr>
<td></td>
<td>1 div &lt; 2 GHz</td>
<td>1 div &lt; 1.8 GHz</td>
<td>1 div &lt; 750 MHz</td>
<td>1 div &lt; 2 GHz</td>
<td>1 div &lt; 1.8 GHz</td>
</tr>
</tbody>
</table>

Max. Trigger Frequency, SMART Trigger: 750 MHz

Basic Triggers

Edge

SMART Triggers

State or Edge Qualified

Dropout

Pattern

SMART Triggers with Exclusion Technology

Glitch and Pulse Width

Signal or Pattern Interval

Timeout (State/Edge Qualified)

Exclusion Triggering

Automatic Setup

Auto Setup

Vertical Find Scale

Probes

Probes

Probe System: Probus

Scale Factors

Color Waveform Display

Type

Resolution

Number of Traces

Grid Styles

Waveform Styles

Analog Persistence Display

Analog and Color-Graded Persistence

Persistence Selections

Trace Selection

Persistence Aging Time

Sweeps Displayed

Zoom Expansion Traces

Display up to 4 Zoom and 4 Math/Zoom traces; 8 Math/Zoom traces available with XMAP (Master Analysis software package) or XMATH (Advanced Math software package)
### Specifications

#### CPU
- **Processor**: Processor Intel® Pentium® 4 @ 2.54 GHz (or better) with Microsoft Windows® XP Professional
- **Processing Memory**: Up to 2 Gbytes
- **Realtime Clock**: Dates, hours, minutes, seconds displayed with waveform
  - SNTP support to synchronize to precision internet clocks

#### Internal Waveform Memory
- **M1, M2, M3, M4 Internal Waveform Memory**: store full-length waveforms with 16 bits/data point
  - or store to any number of files limited only by data storage media

#### Setup Storage
- **Front Panel and Instrument Status**: Store to the internal hard drive, over a network or to a USB-connected peripheral device

#### Interface
- **Remote Control**: Via Windows Automation, or via LeCroy Remote Command Set
- **GPIB Port (Optional)**: Supports IEEE – 488.2
- **Ethernet Port**: 10/100Base-T Ethernet interface
- **USB Ports**: USB 2.0 ports support Windows compatible devices
- **External Monitor Port Standard**: 15-pin D-Type SVGA-compatible
- **Parallel Port**: 1 standard

#### Auxiliary Input
- **Signal Types**: Selected from External Trigger or External Clock input on front panel
- **Coupling**: 50 Ω: DC; 1 MΩ: AC, DC, GND
- **Max. Input Voltage**: 50 Ω: 5 V<sub>rms</sub>; 1 MΩ 250 V (Peak AC < 10 kHz + DC)

#### Auxiliary Output
- **Signal Types**: Select from calibrator, control signals or Off
- **Calibrator Signal**: 5 Hz–5 MHz square wave or DC level; 0.0 to 5.0 V into 50 Ω (0–1 V into 1 MΩ) or TTL volts (selectable)
- **Control Signals**: Trigger enabled, trigger out, pass/fail status

#### General
- **Auto Calibration**: Ensures specified DC and timing accuracy is maintained for 1 year minimum
- **Power Requirements**: 100–120 VAC at 50/60/400 Hz; 200–240 VAC at 50/60 Hz; Automatic AC Voltage selection
  - Max. power consumption: 650 W/650 VA

#### Environmental
- **Temperature (Operating)**: +5 °C to +40 °C including CD-ROM drives
- **Temperature (Non-Operating)**: -20 °C to +60 °C
- **Humidity (Operating)**: 5% to 80% relative humidity (non-condensing) up to +30 °C
  - Upper limit derates to 25% relative humidity (non-condensing) at +40 °C
- **Humidity (Non-Operating)**: 5% to 95% relative humidity (non-condensing) as tested per MILPRF-28800F
- **Altitude (Operating)**: up to 10,000 ft. (3048 m) at or below +25 °C
- **Altitude (Non-Operating)**: up to 40,000 ft. (12,192 m)
- **Random Vibration (Operating)**: 0.31 g<sub>rms</sub> 5 Hz to 500 Hz, 15 minutes in each of three orthogonal axes
- **Random Vibration (Non-Operating)**: 2.4 g<sub>rms</sub> 5 Hz to 500 Hz, 15 minutes in each of three orthogonal axes
- **Functional Shock**: 20 g peak, half sine, 11 ms pulse, 3 shocks (positive and negative) in each of three orthogonal axes, 18 shocks total

#### Physical Dimensions
- **Dimensions (HWD)**: 264 mm x 397 mm x 491 mm; 10.4" x 15.6" x 19.3" (height excludes feet)
- **Weight**: 18 kg; 39 lbs.
- **Shipping Weight**: 24 kg; 53 lbs.

#### Certifications
- CE Compliant, UL and cUL listed; conforms to EN 61326-1, EN 61010-1, UL 3111-1, and CSA C22.2 No. 1010.1

#### Warranty and Service
- 3-year warranty; calibration recommended annually
- Optional service programs include extended warranty, upgrades, and calibration services
**Standard**

**Math Tools**

Display up to four math function traces (F1–F4). The easy-to-use graphical interface simplifies setup of up to two operations on each function trace, and function traces can be chained together to perform math-on-math.

- Absolute value
- Average (summed)
- Average (continuous)
- Derivative
- Deskew (resample)
- Difference (–)
- Enhanced resolution (to 11 bits vertical)
- Envelope
- EXP (base e)
- EXP (base 10)
- FFT (power spectrum, magnitude, phase, up to 25 kpts)
- Floor
- Histogram of 1000 events
- Integral
- Invert (negate)
- Log (base e)
- Log (base 10)
- Product (x)
- Ratio (/)
- Reciprocal
- Rescale (with units)
- Roof
- Square
- Square root
- Sum (+)
- Trend (datalog) of 1000 events
- Zoom (identity)

**Measure Tools**

Display any 8 parameters together with statistics, including their average, high, low, and standard deviations. Histicons provide a fast, dynamic view of parameters and wave shape characteristics.

- Amplitude
- Area
- Base
- Cycles
- Data
- Delay
- Duty cycle
- Duration
- Falltime (90-10%, 80-20%, @ level)
- Frequency
- First
- Last
- Level @ x
- Maximum
- Mean
- Median
- Minimum
- Number of points
- Overshoot
- Peak-to-peak
- Period
- Risetime (10-90%, 20-80%, @ level)
- RMS
- Std. deviation
- Top
- Width
- Phase
- Time @ minimum (min.)
- Time @ maximum (max.)
- Δ time @ level
- Δ time @ level from trigger
- X@ max.
- X@ min.

**Pass/Fail Testing**

Simultaneously test multiple parameters against selectable parameter limits or pre-defined masks. Pass or fail conditions can initiate actions including document to local or networked files, e-mail image of the failure, save waveforms, send a pulse out at the front panel auxiliary BNC output, or (with the GPIB option) send a GPIB SRQ.

**Jitter and Timing**

**Parametric Measurements:**

- Period@level
- Width@level
- Duty@level
- Frequency@level
- TiE@level
- Edge@level

**Statistical Analysis:**

- Jitter Track
- Jitter Trend (1000 pts)
- Histograms (1000 pts)

**Software Options**

**Advanced Math and WaveShape Analysis**

**Master Analysis Software Package (XMATH)**

This package provides maximum capability and flexibility, and includes all the functionality present in XMATH, XDEV, and JTA2.

**Advanced Math Software Package (XMATH)**

This package provides a comprehensive set of signal WaveShape Analysis tools providing insight into the wave shape of complex signals. Additional capability provided by XMATH includes:

- 8 math traces total (4 additional)
- Parameter math – add, subtract, multiply, or divide two different parameters
- Histograms expanded with 19 histogram parameters and up to 2 billion events
- Trend (datalog) of up to 1 million events
- Track graphs of any measurement parameter
- FFT capability added to include: power averaging, power density, real and imaginary components, frequency domain parameters, and FFT on up to 25 Mpts.
- Narrow-band power measurements
- Auto-correlation function
- Sparse function
- Cubic and Quadratic Interpolation function

**Advanced Customization Software Package (XDEV)**

This package provides a set of tools to modify the oscilloscope and customize it to meet your unique needs. Additional capability provided by XDEV includes:

- Creation of your own measurement parameter or math function, using third-party software packages, and display the result in the oscilloscope. Supported third-party software packages include:
  - VBScript
  - MATLAB
  - Excel
  - Mathcad
- CustomDSO – create your own user interface in a oscilloscope dialog box.
- Addition of macro keys to run VBScript files
- Support for plug-ins
Jitter and Timing Analysis Software Package (JTA2)

This package provides jitter timing and analysis using time, frequency, and statistical views for common timing parameters, and also includes other useful tools. JTA2 includes:

- Jitter and timing parameters, with "Track" graphs of:
  - Cycle-Cycle Jitter
  - N-Cycle
  - N-Cycle with start selection
  - Frequency
- Edge@lv parameter (counts edges)
- Histograms expanded with 19 histogram parameters and up to 2 billion events
- Trend (datalog) of up to 1 million events
- Track graphs of all parameters
- Persistence histogram, persistence trace (mean, range, sigma)

Digital Filter Software Package (DFP2)

LeCroy's Digital Filter Package (DFP2) implements a set of linear-phase Finite Impulse Response (FIR) filters and IIR filters. It enhances the user’s ability to examine important signal components by filtering out undesired spectral components such as noise. With the custom design feature, corrupted signals can be reconstructed by applying matched (mirror) filters to compensate for known distortions.

The DFP2 option has a broad range of applications:
- System Identification
- Prediction
- Noise Cancellation
- Low-pass Filters
- Band-stop Filters
- Band-pass Filters
- High-pass Filters
- Raised Cosine, Raised Root Cosine, and Gaussian Filters

Application Specific Test and Analysis Packages

Power Measure Analysis Package (PMA2)

This package provides exceptional ability to measure and analyze the operating characteristics of power conversion devices and circuits.

- Automatic setup and display of relevant waveforms and parameters
- Waveforms scaled and displayed in volts, amps, watts, ohms, etc.
- Power device performance analyzed in-circuit
- Measure and view time domain response of the entire control loop
- Pre-compliance line harmonic testing to EN 61000-3-2
- Complete solutions available including probes and differential amplifiers

Advanced Optical Recording Measurements (AORM)

The AORM option in our new-generation X-Stream oscilloscope environment provides a completely updated user interface and improved debug tools written to support ever-increasing read/write data rates and larger media capacity required for the latest CD and DVD implementations. Typical applications include game box technology and high-capacity DVD Read/Write.

The unique combination of deep acquisition memory available in LeCroy oscilloscopes and the flexibility of AORM in adapting to optical recording standards provides the user with ultimate measurement accuracy and 2-dimensional correlation of recording parameters.

Note: AORM is supported in WavePro 7200A oscilloscopes and higher.

Parameter Definition Table

<table>
<thead>
<tr>
<th>Timing Analysis Parameters</th>
<th>Amplitude Analysis Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>deltap2c</td>
<td>paa</td>
</tr>
<tr>
<td>deltaps2c</td>
<td>pasym</td>
</tr>
<tr>
<td>edgsh</td>
<td>pbase</td>
</tr>
<tr>
<td>period</td>
<td>pmax</td>
</tr>
<tr>
<td>pnnum</td>
<td>pmidl</td>
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<tr>
<td>pwid</td>
<td>pmin</td>
</tr>
<tr>
<td>t@pit</td>
<td>pmoda</td>
</tr>
<tr>
<td>timj</td>
<td>pres</td>
</tr>
<tr>
<td></td>
<td>ptop</td>
</tr>
</tbody>
</table>

Disk Drive Measurements Package (DDM2)

This package provides disk drive parameter measurements and related mathematical functions for performing disk drive WaveShape Analysis.

- Disk Drive Parameters are as follows:
  - amplitude assymetry
  - local base
  - local baseline separation
  - local maximum
  - local minimum
  - local number
  - local peak-peak
  - local time between events
  - local time between peaks
  - local time between troughs
  - local time at minimum
  - local time at maximum
  - local time peak-trough
  - local time over threshold
  - local time trough-peak
  - local time under threshold
  - narrow band phase
  - narrow band power
  - overwrite
  - pulse width 50
  - pulse width 50–
  - pulse width 50+
  - resolution
  - track average amplitude
  - track average amplitude–
  - track average amplitude+
  - auto-correlation s/n
  - non-linear transition shift

- Correlation function
- Trend (datalog) of up to 1 million events
- Histograms expanded with 18 histogram parameters and up to 2 billion events
### Ordering Information

#### WavePro 4-Channel Digital Oscilloscopes
- **Product Code**: WavePro 7300A
- **4 Ch 3 GHz; 10 GS/s; 10 Mpts/Ch; 20 Mpts/Ch**
- **20 GS/s using 2 or 1 Ch; 50 Ω and 1 MO Input**
- **4 Ch 2 GHz; 10 GS/s; 10 Mpts/Ch; 20 Mpts/Ch**
- **20 GS/s using 2 or 1 Ch; 50 Ω and 1 MO Input**
- **4 Ch 1 GHz; 10 GS/s; 10 Mpts/Ch; 20 Mpts/Ch**
- **20 GS/s using 2 or 1 Ch; 50 Ω and 1 MO Input**

#### Memory Options
- **32 Mpts/2 Ch, 16 Mpts/Ch**
- **48 Mpts/2 Ch, 24 Mpts/Ch**

#### Long Memory Versions
- **48 Mpts/2 Ch, 24 Mpts/Ch**

#### Included with Standard Configuration
- **÷10, 500 MHz 10 MO Passive Probe (Qty. 4)**

#### Additional Removable Hard Drive
- **Product Code**: WM-RHD-02
- **Available Options**: 150 A; 500 A; 700 A Peak Pulse

#### Software Options
- **Advanced Math and WaveShape Analysis Software Packages**
  - **XMATH**
  - **XDEV**
  - **XWEB**
  - **JTA2**
  - **XMAP**

#### Communications Testing Software Packages
- **SDM**
- **ENET**
- **USB2**

#### Application Specific Test and Analysis Packages
- **DDM2**
- **AORM**
- **PMA2**
- **WP7-EMC**

#### Hardware and Software Options
- **Product Code**: WavePro 7300A
- **32 Digital Channel Oscilloscope Mixed Signal Option**
- **CANbus TDM Trigger, Decode and Measure/Graph Testing Option**
- **CANbus TD Trigger and Decode Testing Option**

#### Selected Probes and Signal Conditioners
- **÷10, 500 MHz 10 MO Passive Probe (4 included)**

#### Selected Accessories
- **USB 2.0 Compliance Test Software Package**

#### Customer Service
- **LeCroy oscilloscopes are designed, built, and tested to ensure high reliability. In the unlikely event you experience difficulties, our digital oscilloscopes are fully warranted for three years. This warranty includes:**
  - No charge for return shipping
  - Long-term 7-year support
  - Upgrade to latest software at no charge