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ShareAlike — If you remix, transform, or build upon the material, you must distribute your contributions under the same license as the original. No additional restrictions — You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits. You do not have to comply with the license for elements of the material in the public domain or where your use is permitted by an applicable exception or limitation . No warranties are given. The license may not give you all of the permissions necessary for your intended use. For example, other rights such as publicity, privacy, or moral rights may limit how you use the material. PicoLog 5 Resource OS Architecture Release type Size Released Windows: PicoLog 5.25.3 Stable 21 MB Jul 04 2016 PicoScope 5.21.2 Resource OS Architecture Release type Size Released Windows: PicoScope 5.21.2 Stable 22 MB Jan 08 2015 PicoScope 6 Resource OS Architecture Release type Size Released Windows:Discontinued: PicoScope 6.14.69 Stable 213 MB Dec 12 2022 PicoScope 6 (XP/Vista) Resource OS Architecture Release type Size Released Windows XP/Vista: PicoScope 6.11.12 Stable 152 MB Mar 10 2016 PicoScope 7 macOS 10.15 (Catalina) (Hi-res) 13 September 2021Category: Automotive Diagnostics In its landmark 30th anniversary year, Pico Technology has released the first stable version of its latest generation of automotive oscilloscope software, PicoScope 7 Automotive. This release builds on extensive use by vehicle manufacturers and independent repairers to ensure it is ready for everyday diagnostic use in workshops. It is available to download for free by automotive, heavy-duty and off-highway vehicle repairers worldwide from today. PicoScope 7 Automotive represents a major step forward in design and usability, having been developed from the ground up to fully support the touchscreen devices commonplace within vehicle repair workshops. It retains all the PicoScope 6 Automotive benefits that made it an industry standard and introduces usability enhancements, to make it easier for all technicians to learn and use, as well as performance improvements under the hood. For the first time, PicoScope 7 Automotive is now available on macOS and Linux operating systems, in addition to Windows 10. PicoScope 7 Automotive’s modern user interface has: the most important settings and features placed where users most naturally look for them; fewer controls with less visual clutter; consistent styling and behaviors that quickly feel familiar and intuitive; and personalization that allows users to shortcut chosen tools. This makes PicoScope faster to navigate, learn and use, easier on the eye and helps technicians to quickly and confidently capture, view and analyze their waveforms. With support for additional displays, full-screen waveforms and multiple views, PicoScope 7 Automotive also allows you to make the best of your workshop display setup. PicoScope’s popular Guided tests (including Electric Vehicle guided tests in PicoScope 7 Automotive) and Waveform library have both been redesigned and rebuilt and are accessible within their own dedicated browsers with touchscreen-friendly navigation and controls. The Waveform library also supports Windows, macOS and Linux operating systems. One significant new feature is the intelligent probe interface. It builds on the impressive capabilities introduced with Pico Technology’s PicoBNC+® probes and PicoScope Automotive 4225A and 4425A oscilloscopes. By automatically setting up PicoScope, warning users if the wrong probes are connected and suggesting suitable alternative accessories, the new interface saves users time and gives them more confidence in their test setup and results than ever before. Alan Tong, Chief Executive Officer at Pico Technology, said “We’re very proud of PicoScope 7 Automotive. We have listened to feedback from thousands of users about how to improve PicoScope 6. PicoScope 7 represents the summation of all of that. In particular, we were asked to support an even wider range of users and devices and we have achieved that. It feels very appropriate that we are launching this stable version in our landmark 30th anniversary, as we look to continue our 30 years of continuous growth.” Phil Service, Pico Technology’s Automotive Business Development Manager, added “PicoScope 7 Automotive is the platform from which we will launch other game-changing features and products: our aim is to keep ourselves and our users at the cutting edge of vehicle diagnostics. We believe PicoScope 7 Automotive is exactly the software we need to keep us driving the future together.” Try PicoScope 7 Automotive now! It is directly available for free, with no subscription or registration required, from www.picoauto.com/downloads. Single board computer BeagleBoard rev.BCommon manufacturersCircuitco LLC on behalf of BeagleBoard.orgDesign firmTexas InstrumentsIntroducedBeagleBoard July 28, 2008 (2008-07-28)[1]BeagleBoard rev.C May 13, 2009 (2009-05-13)[2]BeagleBoard-xM September 14, 2010 (2010-09-14)[3]BeagleBone October 31, 2011 (2011-10-31)[4]BeagleBone Black April 23, 2013 (2013-04-23)[5]BeagleBoard-X15 November 1, 2015 (2015-11-01)[6]CostUS$95 to $149TypeSingle-board computerProcessorARM Cortex-A8Frequency600 MHz to 1 GHzMemory128 MB to 512 MBConnectionUSB On-The-GoPortsUSB On-The-Go/DVI-D/PC audio/SDHC/JTAG/HDMIPower consumption2 WWeight~37 g[7]Dimensions7.62 cm × 7.62 cm × 1.6 cm The BeagleBoard is a low-power open-source single-board computer produced by Texas Instruments in association with Digi-Key and Newark element14. The BeagleBoard was also designed with open source software development in mind, and as a way of demonstrating the Texas Instrument's OMAP3530 system-on-a-chip.[8] The board was developed by a small team of engineers as an educational board that could be used in colleges around the world to teach open source hardware and software capabilities. It is also sold to the public under the Creative Commons share-alike license. The board was designed using Cadence OrCAD for schematics and Cadence Allegro for PCB manufacturing; no simulation software was used.[citation needed] The BeagleBoard measures approximately 75 by 75 mm and has all the functionality of a basic computer.[9] The OMAP3530 includes an ARM Cortex-A8 CPU (which can run Linux, Minix,[10] FreeBSD,[11] OpenBSD,[12] RISC OS,[13] or Symbian; a number of unofficial Android ports exist[14][15]), a TMS320C64x+ DSP for accelerated video and audio decoding, and an Imagination Technologies PowerVR SGX530 GPU to provide accelerated 2D and 3D rendering that supports OpenGL ES 2.0. Video out is provided through separate S-Video and HDMI connections. A single SD/MMC card slot supporting SDIO, a USB On-The-Go port, an RS-232 serial connection, a JTAG connection, and two stereo 3.5 mm jacks for audio in/out are provided. Built-in storage and memory are provided through a PoP chip that includes 256 MB of NAND flash memory and 256 MB of RAM (128 MB on earlier models). The board uses up to 2 W of power and can be powered from the USB connector, or a separate 5 V power supply. BeagleBoard described Package on package (PoP) SoC/Memory chip. Processor TI OMAP3530 SoC – 720 MHz ARM Cortex-A8 core "HD capable" TMS320C64x+ core (520 MHz up to 720p @30 fps)[16]:3 Imagination Technologies PowerVR SGX 2D/3D graphics processor supporting dual independent displays[9] 256 MB LPDDR RAM[16]:3 256 MB NAND Flash memory[16]:3 Peripheral connections[16]:4 DVI-D (HDMI connector chosen for size – maximum resolution is 1280 × 1024 – and it does not output digital audio) S-Video USB OTG (mini AB) 1 USB port SD/MMC card slot Stereo in and out jacks RS-232 port JTAG connector Power socket (5 V barrel connector type) Development[17]:9 Boot code stored in ROM Boot from NAND memory, SD/MMC, USB, or serial Alternative boot source button. Has been demonstrated using Android,[18][14][15] Angstrom Linux,[19] Fedora, Ubuntu, Gentoo,[20] Arch Linux ARM,[21] openSUSE for ARM[22] and Maemo Linux distributions,[23] VxWorks,[24] FreeBSD,[11] the Windows CE operating system,[25] Symbian,[26] QNX[27] and a version of RISC OS 5[28] made available by RISC OS Open. -xM board A modified version of the BeagleBoard called the BeagleBoard-xM started shipping on August 27, 2010. The BeagleBoard-xM measures in at 82.55 by 82.55 mm and has a faster CPU core (clocked at 1 GHz compared to the 720 MHz of the BeagleBoard), more RAM (512 MB compared to 256 MB), onboard Ethernet jack, and 4 port USB hub. The BeagleBoard-xM lacks the onboard NAND and therefore requires the OS and other data to be stored on a microSD card. The addition of the Camera port to the -xM provides a simple way of importing video via Leopard Board cameras.[29][30] Package on Package POP CPU/memory chip. Processor TI DM3730 Processor – 1 GHz ARM Cortex-A8 core 'HD capable' TMS320C64x+ core (800 MHz up to 720p @30 fps)[16]:3 Imagination Technologies PowerVR SGX 2D/3D graphics processor supporting dual independent displays[9] 512 MB LPDDR RAM[16]:3 4 GB microSD card supplied with the BeagleBoard-xM and loaded with The Angstrom Distribution Peripheral connections[16]:4 DVI-D (HDMI connector chosen for size – maximum resolution is 1400 x 1050) S-Video USB OTG (mini AB) 4 USB ports Ethernet MicroSD/MMC card Stereo in and out jacks RS-232 port JTAG connector Power socket (5 V barrel connector type) Camera port Expansion port Development[17]:9 Boot code stored on the uSD card Boot from uSD/MMC only Alternative Boot source button. Has been demonstrated using Android,[18] Angstrom Linux,[19] Fedora, Ubuntu, Gentoo,[20] Arch Linux ARM[21] and Maemo Linux distributions,[23] FreeBSD,[31] the Windows CE operating system,[25] and RISC OS. BeagleBone Announced in the end of October 2011, the BeagleBone is a barebone development board. It can fit inside an Altoids tin.[32] The BeagleBone was initially priced at US$89.[33] The BeagleBone has a Sitara ARM Cortex-A8 processor running at 720 MHz, 256 MB of RAM, two 46-pin expansion connectors, on-chip Ethernet, a microSD slot, and a USB host port and multipurpose device port which includes low-level serial control and JTAG hardware debug connections, so no JTAG emulator is required. A number of BeagleBone "Capes" have recently been released. These capes are expansion boards which can be stacked onto the BeagleBone Board (up to four at one time). BeagleBone capes include but are not limited to: LCD touchscreen capes (7" and 3.5") DVI-D cape Breakout cape Breadboard cape CAN bus cape RS-232 cape Battery cape[34] Beaglebone Black Launched on April 23, 2013, at a price of $45. Among other differences, it increases RAM to 512 MB, it increases the processor clock to 1 GHz, and it adds HDMI and 2 GB of eMMC flash memory. The BeagleBone Black also ships with Linux kernel 3.8, upgraded from the original BeagleBone's Linux kernel 3.2, allowing the BeagleBone Black to take advantage of Direct Rendering Manager (DRM). BeagleBone Black Revision C (released in 2014) increased the size of the flash memory to 4 GB. This enables it to ship with Debian GNU/Linux installed. Previous revisions shipped with Ångström Linux.[35] The BeagleBoard-X15[36][37] is based on the TI Sitara AM5728 processor with two ARM Cortex-A15 cores running at 1.5 GHz, two ARM Cortex-M4 cores running at 212 MHz and two TI C66x DSP cores running at 700 MHz.[38] The processor provides USB 3.0 support and has a PowerVR dual-core SGX544 GPU running at 532 MHz. Launched in September 2017, PocketBeagle offers identical computing performance to BeagleBone Black in a physical form factor that offers over 50% reduction in size and 75% reduction in weight, along with over 40% cheaper purchase price (December 2018 MSRP US$25 vs. US$45 for BeagleBone Black). The miniaturization was made possible by using the Octavo Systems OSD3358-SM that shrinks all major subsystems of the BeagleBone Black into a single ceramic package attached using ball grid array. The advantages of the miniaturization come at the cost of removal of all built-in connectors except for a single micro USB port, the removal of on-board eMMC flash storage, and a reduction of header pins from 92 down to 72 due to space constraints, meaning that most capes will either not work at all or need heavy modifications to work with PocketBeagle. Just as the BeagleBone Black's printed circuit board (PCB) is cut to fit snugly in an Altoids mint tin, PocketBeagle's PCB is cut to fit snugly in an Altoids Smalls mint tin. Recommended use cases for PocketBeagle include embedded devices where size and weight considerations are most critical, such as quadcopter drones and other miniaturized robotics, along with handheld gaming applications. BeagleV-Ahead BeaglePlay BeagleBone AI-64 BeagleBone AI PocketBeagle BeagleBoard-X15 BeagleBone Black BeagleBone BeagleBoard-xM BeagleBoard Release Date: July 12, 2023[39] March 8, 2023[40] June 14, 2022[41] September 19, 2019[42] September 21, 2017[43] 23 September 2016[44] April 23, 2013 October 31, 2011 September 14, 2010 July 28, 2008 SoC Alibaba TH1520[45] AM625[46] TDA4VM[47] AM5729 OSD3358-SM Sitara AM5728[48] AM3358/9 DM3730 OMAP3530 CPU Quad C910 (RISC-V RV64GC)[45] Quad ARM Cortex-A53 + ARM Cortex-M4F (400 MHz)[46] Dual ARM Cortex-A72 + Quad ARM Cortex-R5F (1000 MHz) + Dual ARM Cortex-R5F (1000 MHz)[47] AM5729 ARM Cortex-A15 Sitara AM3358 ARM Cortex-A8 Dual ARM Cortex-A15 + Dual ARM M4 (212 MHz) + Quad PRU (200 MHz) Cortex-A8 + Dual PRU (200 MHz) Frequency (MHz) 2000[45] 1400[46] 2000[47] 1500 1000 1500 1000 720 1000 720 GPU BXM-4-64[45] PowerVR AXE-1-16[46] PowerVR 8XE GE8430[47] Dual PowerVR SGX544 PowerVR SGX530 Dual PowerVR SGX544 PowerVR SGX530[49][50][51] (200 MHz) DSP ? — TMS320C71x (1000 MHz) + Dual TMS320C66x (1000 MHz) + [47] Dual TMS320C66x — Dual TMS320C66x[49] (700 MHz) — — TMS320C64x+[52] (800 MHz) TMS320C64x+[49] (520 MHz) Onboard storage: 16 GB eMMC, microSD card[45] 16 GB eMMC, microSD card[46] 16 GB eMMC, microSD card[47] 16 GB eMMC 4KB of EEPROM, microSD card 8-bit eMMC 4 GB, microSD card 8-bit eMMC (Rev B: 2 GB Ångström pre-installed, Rev C: 4 GB Debian pre-installed), microSD card 3.3 V Supported (No Card Supplied) microSD card 3.3 V Supported (card supplied with Ångström) microSD card Supported (card supplied with Ångström) 256MB NAND Flash, SD/MMC card Onboard network: ? Gigabit Ethernet, single-pair Ethernet, 802.11n 2.4/5 GHz WiFi, Bluetooth LE, IEEE 802.15.4 ? Gigabit Ethernet, 802.11AC 2.4/5 GHz WiFi — Dual Gigabit Ethernet Fast Ethernet (MII based) Fast Ethernet (MII based) Fast Ethernet (via USB hub with Ethernet) — USB ports: ? 1x USB Type C dual-role, 1x USB Type A host ? 1x USB Type C dual-role, 1x USB Type A host 1x Micro USB Type B 3x USB 3.0 Type A Host4 x USB 2.0 Host1 x Micro USB Type B 1x Standard A host port (direct).1x mini B device port (direct) 1x Standard A host port (direct).1x mini B device port (via hub) 4x Standard A host port (via hub with Ethernet).1x mini AB OTG port (direct) 1x Standard A host port (direct).1x mini AB OTG port (direct) Memory (SDRAM): 4096 MiB LPDDR4[45] 2048 MiB DDR4[46] 4096 MiB LPDDR4[47] 1024 MiB DDR3L 512 MiB DDR3 2048 MiB DDR3L 512 MiB DDR3 256 MiB DDR2 512 MiB DDR2 128 MiB (rev B) DDR 256 MiB (rev C+) DDR Video outputs: ? HDMI ? Micro-HDMI none HDMI, LCD via Expansion Micro-HDMI, cape add-ons cape add-ons DVI-D, S-Video Audio outputs: ? HDMI ? Micro-HDMI none HDMI, AIC3104 (Stereo In/out) Micro-HDMI, cape add-ons cape add-ons 3.5mm audio jack Size: ? 80 mm × 80 mm × 20 mm (3.15 in × 3.15 in × 0.79 in)[53] ? 8.9 cm x 5.4 cm x 1.5 cm 56mm x 35mm x 5mm 107 mm × 102 mm (4.2 in × 4.0 in)[54] 86.40 mm × 53.3 mm (3.402 in × 2.098 in) 86.40 mm × 53.3 mm (3.402 in × 2.098 in) 78.74 mm × 76.2 mm (3.100 in × 3.000 in) 78.74 mm × 76.2 mm (3.100 in × 3.000 in) Weight: ? 55.3 grams (1.95 ounces)[55] ? 48 grams (1.7 ounces) 10 grams (0.35 ounces) TBA 39.68 g (1.400 oz)[56] 39.68 grams (1.400 ounces) ? ? Power ratings: ? 3.77 A @ 5 V[57] ? 3A @ 5V[58] 150 mA @ 5 V 210–460 mA @5 V 210–460 mA @5 V 300–500 mA @5 V ? 350-1000 mA @5 V Power source: ? USB C Port ? USB C Port micro USB port or I/O pins 2.5 mm × 5.5 mm 12 V jack Mini USB or 2.1 mm x 5.5 mm 5 V jack Low-level peripherals: ? ? ? 4+xUART, 16-bit LCD, 2x SPI, 2× I²C 3xUART, 4× PWM, 2× SPI, 2× I²C, 2x CAN bus 7xUART, LCD, GPMC, 1× SPI, 1x I²C, 1x CAN bus 4xUART, 8× PWM, LCD, GPMC, MMC1, 2× SPI, 2× I²C, A/D Converter, 2× CAN bus, 4 Timers 4xUART, 8× PWM, LCD, GPMC, MMC1, 2× SPI, 2× I²C, A/D Converter, 2× CAN bus, 4 Timers, FTDI USB to serial, JTAG via USB McBSP, DSS, I²C, UART, LCD, McSPI, PWM, JTAG, camera interface McBSP, DSS, I²C, UART, McSPI, PWM, JTAG The following operating systems are reported to have obtained support for the hardware used on the boards: Fedora, Android (code named rowboat), Ubuntu, Void Linux, openSUSE and Ångström. The board also supports other OSes such as FreeBSD, NetBSD, OpenBSD, QNX, MINIX 3, RISC OS, and Windows Embedded. BeagleBoard Zippy – Feature expander daughter card for BeagleBoard BeagleBoard Zippy2 – Second-generation Zippy. (UART, EEPROM, 100BASE-T, SD-Slot, RTC, I²C (5 V)) BeagleTouch Display – Touchscreen 4.3" OLED panel with touchscreen, and drivers for Angstrom Linux built by Liquidware. BeagleLCD2 Expansion Board – 4.3" wide aspect LCD panel + touchscreen with interface board. Developed by HY Research. BeagleJuice – Lithium-ion battery pack for portability developed and built by Liquidware. WLAN adapter – This additional expansion card enables wireless connectivity functionality for the BeagleBoard. BeadaFrame – 7" TFT LCD display kit includes a touch panel and a plastic frame, by NAXING Electronics. 4DLCD CAPE – 4.3", 480x272 resolution LCD cape with resistive touch or non-touch and seven push buttons Vifff-024 – a very sensitive camera allowing capture of video stream at quarter moon illumination. Developed by ViSensi.org.[59] Beagle Board RevC Clear Acrylic Case – Case for a BeagleBoard alone. (without Zippy2) BeagleLCD2 Clear Acrylic Case – Case for BeagleBoard with BeagleLCD2 IGEPv2 – a slightly larger board that includes more RAM, built-in Bluetooth and Wi-Fi, a USB host, an Ethernet jack, and use microSD cards instead of regular SD cards. ICETEK Mini Board (Chinese)[60] Open-source computing hardware IOIO ^ "USB-powered Beagle Board from Digi-Key Unleashes Community Development with Laptop-like Performance and Expansion for $149" (Press release). Digi-Key. July 28, 2008. Archived from the original on October 4, 2011. Retrieved September 15, 2017. ^ "Digi-Key Announces New Open Source BeagleBoard Development Board" (Press release). Digi-Key. May 13, 2009. Archived from the original on October 4, 2011. Retrieved September 15, 2017. ^ Kridner, Jason (May 4, 2017). "BeagleBoard-xM". BeagleBoard.org. Texas Instruments. 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There are many diagnostic tools at your disposal, including: Technical Information Training Knowledge and Experience Serial Diagnostic Tools (OBD) Multi-meters Gas-analysers PicoScope; and many more. Become a Professional Diagnostic Provider All of these tools combine to form a powerful capability in your business. However, it is your ability to use them together that will ensure you remain a successful workshop in the future. Using PicoScope allows you to see, analyse and understand the electrical signals that vehicle components produce. Consequently, you will be able to discover the root cause of a problem. This in turn, will enhance the reputation of your business as a professional diagnostic provider. Vehicle Manufacturers prefer PicoScopes Don’t just take our word for it. More than twenty of the world’s leading vehicle manufacturers already use PicoScope in their dealerships as their diagnostic tool. It's Pico Technology's heritage and commitment that makes the PicoScope the scope of choice. It is therefore obvious that PicoScope is not specific to any make or model and can be used everywhere. Setting out on your Diagnostic Journey When you first start your diagnostic journey with PicoScope, the idea of connecting to vehicle components and reading their signals may seem a little daunting. Therefore Pico have spent over 20 years breaking down the myths about scope diagnostics. It should be noted that they have helped their customers become some of our industry’s leading diagnostic experts. If you take the time to read through this guide, you will gain a foundation of much wider knowledge and understanding of vehicle systems and analysis. This will lead you to more reliable and professional diagnoses of your customers’ vehicles. What can your PicoScope do? Vehicle complexity is increasing. Thus, more and more complex diagnostic problems face the workshop. A tool that gets to the heart of the problem has never been more valuable. Only PicoScope combines high levels of help to first-time users with lightning-fast capture rates and high resolution to cope with the most advanced modern-day vehicle signals. Pico Technology is unique within the Automotive Industry: In the way they specialize in the manufacture of PC-based scopes for automotive use; and How they work with an ever-increasing number of the world's leading vehicle manufacturers for dealer-level oscilloscope diagnostics. This experience ensures that PicoScope is ahead of the competition and is constantly advancing to tackle the fast-paced developments within the Automotive Industry. Over the following pages, you will find a summary of PicoScope and what it can do. We hope this will help show you that, by investing in PicoScope, your business can become proficient in vehicle diagnostics and give you the competitive edge. Remember that the PicoScope can be used on a wide range of vehicles and equipment, including: Cars, trucks, bikes, agricultural vehicles, boats, aeroplanes, earth-moving, petrol, diesel, EV and more. When used with our range of accessories, PicoScope can also detect signals relating to vacuum, fuel and hydraulic pressures, noise, vibration and harshness. It is safe to use, with no risk to the vehicles or the equipment, thanks to our non-intrusive testing methods. PicoScope Diagnostic Software Pico Technology’s advanced diagnostics software is free to download, has free upgrades for life and is always on hand to help you, no matter what your experience of capturing component waveforms is. At this point, it is worth reminding ourselves what a waveform is. Simply put, it shows how voltage levels change over a period of time: The current production version is PicoScope 6 but it will soon be replaced with a complete re-write, currently in beta PicoScope 7. PicoDiagnostics Arguably PicoScope’s best-kept secret is our PicoDiagnostics software. This ever-evolving software is downloaded for free alongside our PicoScope Automotive software. It not only gives you an accurate, powerful battery, starter and alternator tester but also includes tests for relative compression and cylinder balance. Note that the performance of these tests is limited by some modern vehicles’ smart charging systems. As your journey into more advanced vehicle diagnostics continues, the purchase of our NVH Diagnostics Kit opens up the possibility of detecting and analyzing issues with noise, vibration, and harshness. A single installation file for both PicoScope 6 Automotive and PicoDiagnostics is available to download for free from our website at www.picoauto.com. There are no charges or annual fees for updates. Our software is constantly evolving, which increases its value long after the initial purchase. Enjoy Pico’s free software updates and lifetime support for your PicoScope. We are always happy to help our customers, regardless of the age of the product. Scope diagnostics is only for experts - right? Wrong. This perception could not be further from the truth. While PicoScope may be used by some of our industry’s foremost experts (thanks to its outstanding performance and resolution), it is surprisingly intuitive and easy-to-use for a novice. The Multimeter Let's start at the beginning. You are probably already familiar with using a multimeter as a basic check, to make sure that a component is receiving a power and signal voltage. You will also know that the multimeter is relatively easy to connect to the component. A scope benefits from a better connection, but the process is much the same as connecting a multimeter. For our scope connection we usually use back-pinning probes or breakout leads. They give you a more secure connection, and are just as easy to use. Let us look at an example of connecting to a camshaft sensor. Locate the sensor you wish to test by using a combination of experience and technical data. For a camshaft sensor, we recommend that you use a back-pinning probe. When this connection is made it is simple to attach your PicoScope. The simplicity of the connection is where the similarity with a multimeter stops. A PicoScope can let you see high levels of detail in your test results rather than a single voltage. More importantly, the waveform is much more valuable to you as a technician than a simple multimeter reading. For example, a multimeter measurement of 7.46 V is displayed. However, with the same connection, PicoScope displays a clear and concise waveform, showing a 12V camshaft sensor switching off and on with a regular pattern. Granted, this example is one of the easiest components to both connect to and analyse, but with PicoScope, there really are an unlimited number of tests you can undertake. We even include an ever-increasing selection of Guided Tests in the PicoScope 6 Automotive software, to help you test the most common components. Guided Tests When you select a Guided Test in the Automotive Menu, a test sheet is opened containing among other things: The purpose of the test How we recommend you connect to the component The recommended settings and accessories An example waveform Notes about the waveform to help with your analysis How to reach a diagnosis based on the analysis Additional information – how the component works and its relationship to other components In addition, when you select the Guided Test, the PicoScope software also opens a data file which sets up the PicoScope to run the given test. This means that in your first days of using PicoScope you don’t have to worry about setting up the software manually – you are simply ready to start running your test. Our Top 10 Tests with PicoScope 6 If you are new to PicoScope, you may be wondering exactly how you can use it and what benefits it will have for your workshop. With this question in mind, we have created what we consider to be the Top Ten uses for PicoScope, with help and feedback from our users. We have included a brief overview of each test, a video animation to illustrate how the test is performed, the benefits the test offers you, and most importantly, how to: Connect Connect to the vehicle Run Capture the waveform Read Analyse the captured waveform Remember: These tests are supported with guided instructions, technical information and a settings file built into the PicoScope Automotive software. Today, we have more than 150 Guided Tests, but they are by no means the limit of what PicoScope can be used to test for. Please click Next for the first test - Relative Compression whilst Cranking. PicoScopes & kits For vehicle manufacturers EV kits and accessories Noise, Vibration and Balancing Milliohm tester Pressure sensors Current clamps Breakout leads/boxes Accessories What it does Waveform Sharing makes it very easy for any PicoScope user to share a waveform so that others can quickly locate it within the Waveform…Go To Article ➜ What is the Waveform Manager? The Waveform Manager helps you quickly import and edit your local waveforms before uploading them to our free Waveform Library cloud storage. Once there,…Go To Article ➜ What it does Waveform Favorites lets you mark waveforms as a favorite so that you can quickly access it again within the Waveform Library Favorites area. How it can help…Go To Article ➜ What it does The Waveform Library holds thousands of waveforms uploaded by the worldwide PicoScope user community for you to use as a reference for your own…Go To Article ➜ Marketing plan "Microsoft .NET" redirects here and is not to be confused with .NET Framework or .NET. The Microsoft .NET strategy is a marketing plan that Microsoft followed in the early 2000s. Steve Ballmer described it as the company's "most ambitious undertaking since Internet Strategy Day in 1995". In support of this strategy, between 2000 and 2002, Microsoft released ".NET" branded updates to its works, including Visual Studio .NET, Visual Basic .NET, .NET Passport, .NET My Services, .NET Framework, ASP.NET and ADO.NET. A Windows .NET Server was also announced. Microsoft had plans to include Microsoft SQL Server, Microsoft Exchange Server and MSN into this strategy.[1][2][3][4][5] By 2003, however, the .NET strategy had dwindled into a failed branding campaign because the brand had failed to articulate what Microsoft had in mind in the first place. As such, Windows .NET Server was released under the title of Windows Server 2003.[6] Since then, Visual Studio and .NET Passport have been stripped of ".NET" in their brandings. However, Microsoft and the rest of the computing industry use ".NET" to indicate close association with .NET Framework, e.g. .NET Compiler Platform, .NET Foundation and .NET Reflector. ^ Deckmyn, Dominique (23 June 2000). "Update: Microsoft stakes future on .Net strategy". Computerworld. IDG. Archived from the original on 1 October 2022. Retrieved 9 May 2025. ^ "Advancing Microsoft's .NET strategy". ZDNet. CBS Interactive. 14 August 2000. ^ Serwin, Sebastian (19 July 2002). "The Microsoft's .NET strategy". TechGenix. 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Watch now to see what 2024 brought to PicoScope 7! These serial protocol decoders are built-in and included as standard at no extra cost. Flexible display options allow you to clear your virtual workspace and work seamlessly across multiple displays. Easily interact with the software using a touchscreen or mouse. Easily interact with the software using a touchscreen or mou