Car and Auto Technology

By
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In the beginning there was AM radio, and it was good. Imagine – a car with a radio! But what worked so splendidly way back in the 1930s wasn't quite so wonderful decades later when the general public began hungering not only for better mobile sound, but also for customized content.

Chrysler came up with a solution in 1956. It was called the "Highway Hi-Fi," a record player that mounted under the dash. That's right, a record player. The Highway Hi-Fi squeezed the needle deep into the grooves, thus eliminating concerns over skips and jumps – but heightening the fear of pressure-shredded vinyl.

Nonetheless, several alternative forms of automotive turntables hit the market in subsequent years, as did other, better, newfangled contraptions such as FM tuners and 8-track and cassette tape players. And when head units (the dash-mounted hub of car audio systems) began including compact disc players in the mid-80s, many of us felt that was the be all and end all of the media-enhanced car. But it wasn't, was it? The DVD player followed a few years later.

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Car Audio/Video: iPods, FM Transmitters, GPS and DVD

And the scene changed completely earlier this decade as advancements in digital media made audio CDs virtually obsolete. The big deal initially was the marriage between iPod-type devices and in-dash head units, via plug-in FM transmitters and cassette adapters. The latter concept sounded a bit better than the former, but neither was truly an ideal answer for those who wanted true integration, full thru-the-deck control, and top-notch audio.

A more sophisticated iPod solution is now found in head units sporting integrated iPod connectivity. In setups like this, you connect the iPod via the included cable, hide it away in a glove compartment, and view the playlist and control virtually all its functions through the head unit. What's

more, the system recharges the iPod's battery automatically every time it's plugged in. Affordable, reliable iPod-integrated models such as Alpine's CDA-9884 and CDA-9886, as well as several units in Pioneer's DEH series will do just fine.

Pioneer DEHP7000BT

For a more permanent setup that needn't even involve an iPod, head units with built-in USB connectivity – usually by way of a cable that you can hide where prying eyes can't see – lead the way. Granted, some USB connections are more finicky than others, but most will support a variety of storage devices, including flash drives, iPods and iPod clones, and yes, even hard drives. Interested consumers should always check with the manufacturer first to determine which storage devices are compatible with a given unit, and whether it supports USB 1.1 or the faster USB 2.0.

Moreover, once you get into the realm of USB, you're also getting into head units with a ton of other advanced features. It's all a matter of how far you want to take it, but some of today's top-end USB-equipped models also offer HD Radio and satellite radio capabilities, Bluetooth support for hands-free use of a cell phone, and, in some cases, onboard GPS and DVD playback via built-in viewing screens. At this level, it's always wise to focus on brands that lead the way in expandable, high-end car tech, such as Kenwood, Alpine, Clarion, and Pioneer.

In-Dash Entertainment and Head Units

The current dueling godfathers of head units, and quite likely two of the most advanced and proficient decks ever made, are and Pioneer's AVIC-F90BT. They deliver everything we've discussed above and much, much more. Of note, the DNX8120 adds voice prompts, an SD card reader for map updates of the built-in Garmin GPS system, two USB 2.0 ports, and a high-powered 5.1 audio amplifier, while the AVIC-F90BT offers voice control for iPod playback, a high-resolution 800-by-480-pixel display screen, and both a USB connection and an SD card reader to play media files. Note that both are "double DIN," meaning they're twice the height of typical head units, and as such, may require special mounting.

But with MSRPs of $1,600 (DNX8120) and $1,200 (AVIC-F90BT), both are pricy propositions. And as cool and as cutting edge as the both may be, there are a few things they can't do. They can't, for example, surf the Internet. They can't play video games. They won't allow you to upload photos during your next vacation, they won't let you type a letter, and they don't provide massive amounts of internal storage. If those are the type of amenities you're after, you may want to consider moving beyond mere head units and into the world of "carputers."

A full-blown computer for your car? Sure. Carputers aren't new – they've been around for several years already. And they come in two flavors too – prebuilt and do-it-yourself. It all depends on how much work you're willing to put into the project and how much control you want over the final product.

Car Computers, a.k.a. "Carputers"

Before you make any decision in that regard, it would be wise to check with what is easily the Internet's best resource on the subject of DIY carputers, mp3Car.com. Staffed by serious hobbyists and intended for serious hobbyists, mp3car.com offers oodles of information, a storefront where you can buy virtually anything and everything in the carputer field – from individual components to assembled systems – and a discussion forum that's second to none. Sporting more than a million posts and constant traffic, it's become the spot on the Web for newbie and hardcore enthusiasts.

So…what do you need for a DIY carputer? The basic ingredients will modulate somewhat based on your available space, available budget, and intended uses, but, at the very least, you'll need a CPU (low-power, low-heat models such as those found in laptops are arguably the best for the job), a motherboard (mini-ITX form factor motherboards are certainly compact enough), a storage device (durable solid stated drives are becoming more spacious and affordable every day), a display (seven-inch touch-screen VGA displays are the current norm), and a power supply (a straight-up DC-DC power supply should suffice).

A workable DIY carputer "hub" shouldn't set you back more than a grand or so, but remember that if you also want booming audio, rear cameras, and all the other cool stuff you can link to the system, both your end cost and your labor will escalate rapidly.

Dashboard Technology and Devices

If a carputer appeals to you, but you'd prefer the relative ease and convenience of prebuilt, there's a variety of options available to you. One of the priciest (approximately $2500) but most capable hails from Michigan-based Azentek. It's called the Atlas CPC-1200, and it's a full-function carputer based on an Intel Core Duo 1.66GHz processor, a 120GB hard drive, 1GB of memory, Windows' Vista operating system, and a 6.5-inch LCD touch screen.

Revamped for 2009 from prior Azentek systems, the CPC-1200 features perks such as built-in WiFi,

AM/FM and XM/Sirius radio capabilities, HD Radio, Bluetooth connectivity, a CD/DVD rewriter, four USB ports, and an external GPS antenna. It'll surf the Internet, read emails and messages aloud as they arrive in your inbox, provide vehicle diagnostics, store and play movies, allow you to operate its Navigon GPS navigation system via voice commands, and much more. And, you can upgrade it in the future just like you could a desktop. For availability info, contact Azentek.

Not to be outdone, Florida-based Dashboard Devices offers its own carputer solution again based on the Intel Core Duo CPU, a 160GB hard drive, and 1GB of memory. The "ENV" (Environment and Navigation for Vehicles) is a two-part rig – a double DIN head unit/screen for your dash, and a tiny (1.8 by 4.3 by 6.6-inch) computer "brain box" that can be installed anywhere there's room. Dashboard Devices says a two-part carputer more easily allows for upgrades and swapping between vehicles. You can expect the ENV system to handle just about everything the Atlas CPC-1200 can do, but we don't yet know what you'll pay for one when it becomes available later this year.

If all this talk about full-blown carputers gives you an ache in the pocketbook, you might want to take solace in the fact that the technology may already be evolving beyond current standards. With the rapidly increasing capabilities of smartphones and the emergence of an omnipresent Internet that soon will be accessible just about everywhere you regularly drive, even hardcore mobile geeks may inevitably tune out today's brand of automotive desktops.

Smartphones, Convergence and Mobile Internet

The logic is actually quite clear. Even now, smartphones are highly capable machines through which you can do so much: browse the Internet, make use of GPS, play music and watch videos, place voice-activated phone calls, and so much more. And that potential is only expected to expand in the next few years.

Add to that the growing ubiquity of the Internet. Soon it will be everywhere, not just in a few select hotspots. And it's getting faster. And smoother. Will we really need to store a gazillion tunes, a gazillion movies, and outdated GPS data in our car systems when we can stream all of it, in real time, from the Internet cloud? Is there a day coming when we can dock a smartphone in our car, interface it with a large touch screen, and have virtually everything today's carputers provide? Probably.

We're already seeing the first waves of such "connected" technology. Look at Blaupunkt's TravelPilot New Jersey 600i Internet car radio, due for release in the third quarter of 2009. The unit accesses the Internet via Bluetooth through your cell phone, and utilizes the online portal miRoamer to stream you tens of thousands of Web radio stations. Or check out the TomTom GO 740 Live portable navigation device, also due in North America this year. Featuring Bluetooth and voice recognition capabilities, the GO 740 Live offers real time, instant information on everything from local fuel prices to weather forecasts, local restaurants, and even current traffic information.

Mobile Devices' Dreevo 2, just announced at CES 2009, mirrors many of the same attributes and functions of the GO 740 Live, but apparently also tunes you

into the whereabouts of nearby speed cameras and even available parking spots. It also allows you to instant message your findings (and anything else you can think of) to your friends and family and other drivers.

And our always-connected, everything-but-the-kitchen-sink automotive future moves inexorably closer. Stay tuned.

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