

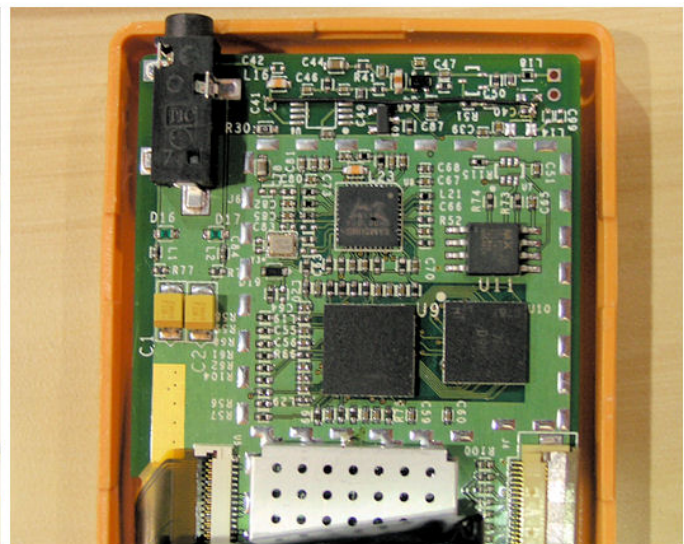


New Technologies on Display at CES 2008

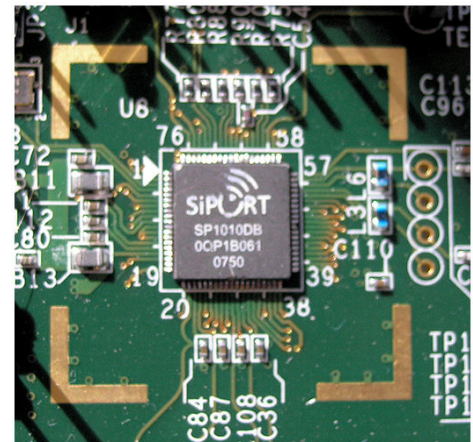
The eyes of the consumer electronics world were on Las Vegas last week as the 2008 International Consumer Electronics Show (CES) drew over 130,000 attendees with exhibits from over 2,700 companies spanning 1.85 million net square feet of exhibit space. As usual, broadcasting-related technologies, in particular HDTV and HD Radio, were very much a part of the show; given below are some of the highlights as noted by NAB staff who were in attendance:



HD Radio mobile chipsets – the first low-power HD Radio integrated circuits (ICs) were unveiled at the show, with the promise of HD Radio receiver integration into MP3 players and cell phones. On display in the iBiquity booth was a chipset developed by Samsung, shown in an HD Radio-in-a-cell phone mock-up (shown in the photo below). The core receiver circuitry consists of four chips —the SDHR100A HD Radio RF-IF processor, the SDHR200A HD Radio main processor, and two memory chips (RAM and flash) —requiring approximately 180 mW total.



A second implementation, by semiconductor company SiPort (Santa Clara, CA, www.siport.com) was on display in a suite at the Las Vegas Hilton (see photo at right). Also shown in the SiPort suite were two prototype MP3 players with integrated FM HD Radio receivers (using the SiPort IC). The SiPort implementation consists of a single chip and requires 100 mW when operating as an HD Radio receiver; this same chip is also able to function as a Eureka-147 DAB receiver (including DAB+), an RDS receiver, and can receive the FM subcarrier-based MSN Direct signal (see more on MSN Direct below). A small external tuning module is required with the SiPort chip to implement an AM IBOC receiver.



MSN Direct HD – Microsoft, working in conjunction with broadcasters and consumer electronics manufacturers like Garmin, Oregon Scientific and others offers a subscription data delivery service using a nationwide network of digital FM subcarriers. At this year's CES a

number of exhibitors including Microsoft, Dual (a car radio manufacturer) and iBiquity were showing prototype receivers utilizing an HD Radio-supported version of the MSN Direct service (called “MSN Direct HD”). Clear Channel station KWNR (99.5 MHz, Henderson, NV) was broadcasting the MSN Direct data using the Advanced Application Services (AAS) portion of the HD Radio signal. Clear Channel has previously announced its intentions to support MSN Direct HD over its FM HD Radio stations; plans are for MSN Direct HD to launch a full suite of location-based content including Clear Channel traffic as well as a variety of other services including radio program guide, weather, gas prices, movie information, news, stocks, and more.

ICART – a partnership of Harris, NPR and Towson University announced the formation of the International Center for Accessible Radio Technology (ICART) which will leverage HD Radio multicasting and data broadcasting technologies to enable hearing-impaired people to “see” live radio content on specially equipped receivers by applying television closed-captioning processes to radio broadcasts. The technology also will provide audio cues and voice prompts, as well as advanced radio reading services, for those visually impaired and blind. Making statements at the kick-off press conference were (shown in the photo, from left to right) NPR VP of Engineering Mike Starling, NPR CEO Ken Stern, Harris CEO, Chairman and President Howard Lance, Towson University Dean of the College of Liberal Arts Terry Cooney, Executive Director of the No. Va. Resource Center for Deaf and Hard of Hearing Persons Cheryl Heppner, and Sun Sounds of Arizona Director Bill Pasco.



During the press conference, the organizations showcased the first over-the-air transmission of the accessible radio technology using a signal from WX3NPR, a special temporary station authorized by the FCC for the live broadcast. Attendees watched the text transcript of the NPR morning news magazine “Morning Edition” on the HD Radio receiver’s viewing screen, which is what a hearing-impaired listener will see using the technology. ICART will be headquartered at Towson University in Towson, Md., with the University housing the primary administrative and academic research offices, with NPR Labs in Washington, D.C., providing technology R&D and software development, and with Harris Corporation supplying transmission and research support at its radio broadcast technology center in Cincinnati, Ohio. The full press release is available on the Towson University Website [here](http://www.i-cart.net). More information on the initiative can be found at <http://www.i-cart.net>.

iBiquity receiver display – the iBiquity exhibit in the North Hall of the Las Vegas Convention Center was considerably large and more crowded than in previous years. On display were a record number of receivers from the automotive, tabletop and hi-fi categories (a group of tabletop receivers is shown in the photo below; see table for a complete listing) as well as the Samsung mobile chipset and the MSN Direct HD demonstration discussed above. The Alpine TUA-T550HD receiver was awarded a CEA Innovation award for its use of “iTunes tagging.” The CEA Innovation Award program recognizes technologies, applications, products, and services judged to be the most unique in design and engineering and beneficial to the consumer electronics industry. The winning



products are selected by a panel of independent industrial designers, engineers and trade press editors based on "engineering and design qualities, uniqueness, user value, contributions to consumers' quality of life and the impact on the manufacturer's business." A list of all the Innovation Award winners for 2008 may be found online at http://www.cesweb.org/attendees/awards/innovations/rd_2008honorees.asp.

AUTOMOTIVE (16)						H I - F I (10)	
Alpine	TUA-T550HD (w/ iDA-X001 head unit)	Kenwood	KTC-HR200 (w/ KDC-MP738U head unit)	iLuv	i168 i169	Audio Design	Duo Tuner / Quadritune
Dual	XHD6420 XHD6425 XHD7720	Pioneer	GEX-P10HD (w/DEN-P700BT head unit)	Insignia	NS-HD2114	Denon	AVR-4308CI
Boss Audio Systems	750HD	Sony	XT-100HD (w/CDX-GT320 head unit)	JBL	iHD	Integra	TUN-3.7
Insignia	NS-C5112	Visteon	HD Jump	LG	PC12	Marantz (D&M)	SR8002
Jensen Mobile	HD5212 VM9312HD	T A B L E (1 6)		Polk Audio	HDX3 i-Sonic 2	Niles Audio	TM-HD/R
JVC	KD-G340 KD-HDR30 KD-AHD39 KT-HDP1	Accurian	TTR	Radiosophy	HD100	Onkyo	TX-NR905
		Cambridge Soundworks	820HD	Sangean	HDR-1	Rotel	RT1084
		Denon	S-52	Sony	XDR-S3HD XPR-S10HIP	Sangean	HDT-1X
		Dice	iTR-100			Sony	XDR-F1HD
						Yamaha	RX-Z11

Also, last week Ford Motor Company became the first U.S. automaker to announce the availability of factory-installed HD Radio technology as a standard or optional feature on Ford, Lincoln and Mercury vehicles beginning in calendar year 2009.

Wi-fi radios – numerous manufacturers were displaying "Internet radios" designed to receive audio streams from the Internet wirelessly (using Wi-fi) without the need for a computer. Shown in the photo at right are a group of Internet radios on display in the CCrane booth made by Sangean, Tangent, and Revo (additional information on these radios is available on the CCrane Website at www.ccrane.com).



NAB Seeks Nominations for 2008 Engineering Achievement Awards

NAB is looking for nominees to consider for the prestigious NAB Engineering Achievement awards. Separate awards will be given for achievements in radio and television at the Technology Luncheon at the NAB Show on April 16, 2008 in Las Vegas, Nevada. The qualifications for nominating someone and the nomination form are downloadable on [NAB's technology resources Webpage](#). You may also request a nomination form by calling NAB Science & Technology at (202) 429-5346. The deadline for nominations is January 15, 2008.

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