

3D with and without glasses, web meets TV, apps and tablets, chips and platforms

Consumer Electronics Trends in 2011

Due to the rapid pace of innovations the consumer electronics industry is constantly setting new standards. The merging of television with the internet, media and devices in 3D and HD, the massive upsurge in sales of tablet PCs, apps and smartphones, as well as networking for the home and for people on the move are setting the trends in 2011. The world's most important trade show for consumer electronics, IFA in Berlin, is presenting the entire range of innovations from every branch of the industry.

3D – with and without glasses, exciting and diverse range of new image sources

3D is already an established feature of today's televisions and is accounting for an increasing share of the range of equipment now available. 3D is no longer restricted to top-of-the-range sets. This new technology now looks set to occupy a firm place in the mid and lower price ranges, and that is the target for 2011.

The 3D glasses are now much lighter and, due to the use of special geometry, can be worn much more easily with normal spectacles as prescribed by opticians. Moreover the industry is now working to create common standards for infra-red shutter lenses. This would make products from different manufacturers compatible, and competition will thankfully help to reduce prices. In accordance with a proposed new standard, current infra-red technology would be replaced by radio signals, giving viewers greater freedom of movement.

The "passive" spectacles with single polarization lenses that are frequently used in cinemas are another option. They can be manufactured extremely cheaply but do require the use of a special 3D screen which has a polarizing coating. One disadvantage of this method is that the 3D images have only half the vertical

resolution. However, on the plus side, the images for the right and left eye are displayed simultaneously, helping to produce movement sequences that are steady, with a distinct lack of judder and flicker.

Alongside current solutions, in the medium term 3D TV without glasses will play an increasingly important role. The first mass produced sets are already on sale in Japan, although this initial generation only has small screen formats while the prices are comparable with those of high end equipment. By the time IFA takes place in 2011 the first sets with screens in excess of 40 inches will be coming onto the market. Prototypes with 65 inch screens are already in existence, some of them with 4k resolution (this is more than four times the number of pixels offered by full-HD screens). However, it will be some time before glasses-free 3D TV is available in the same price range as present-day 3D sets with shutter lenses.

From 2011 onwards the 3D market will be influenced increasingly by peripherals with 3D capability. Almost all of the new Blu-ray players can reproduce movies in 3D. For amateur movie-makers and photographers too 3D is a rapidly expanding field too: at IFA 2011 the industry will be presenting a whole range of new 3D camcorders and digital cameras with 3D capability.

TV and web – the best of two worlds on one screen

Catch-up TV, mediatheques, video clips from Youtube pages, the world of social networks from Twitter to Facebook, slide shows from providers of online photo services, weather reports, up-to-the-minute news, sports results, stock market prices or communication via Skype: all of this content from the internet can be seen on the same screen as that used for traditional television viewing. App icons, similar to the virtual keypads on smartphones and tablets, provide access to the content and applications. Each manufacturer offers a slightly different approach, with terminals defining their own, rapidly expanding portals. Some manufacturers have already created development communities for TV apps, combining various forms of IT creativity.

In addition to apps, some sets also include browsers for internet access, as on a PC. Special operating apps with virtual keypads on smartphones or tablets, and connected with televisions via the wireless network for the home, are an ideal way of

navigating through such pages on the screen.

In 2011 HbbTV (Hybrid Broad Band TV) will continue to acquire a stronger presence. The abbreviation refers to a standard that permits a direct link to be established between TV broadcasts and web content. Using this system broadcasting stations can also transmit data to accompany a programme, functioning in the same way as a web link. Pressing the red button on the remote control switches from the current TV programme to programme-related information from the internet.

The merging of television with the internet has been a growing trend over the past two years, and will acquire even greater importance in 2011 and the years that follow. It marks not only a significant technological trend but also a latent paradigm shift in business models within the CE sector. In future commercial success will be largely defined by the successful combination of the features installed on terminals and the range of available content, and by cross-sectoral cooperation between the hardware and content industries.

Apps and tablets – the missing link in consumer electronics and home networking

Taking the iPad as a prototype, within just a few months an entire new category of devices has been created. Demand for these flat devices is enormous, and the manufacturers are meeting this demand by constantly introducing new models. Like their smaller equivalent, the smartphones, the flat computers are setting new standards in ergonomics and in their range of applications. Originating from the world of computers, they are defining a completely new, intuitive way of accessing the entire digital world. Along with the hardware a massive range of applications has been created, and the combined creativity of thousands of developers is producing a constant flow of new uses.

Traditional CE manufacturers are also making a significant contribution with their own ideas for applications. It almost seems as if they have been waiting for these new types of devices. In fact apps on tablets and smartphones are acting like a missing link in consumer electronics: applications now permit even the most complex functions of networked consumer electronics to be controlled easily and in a clearly arranged, visual form. Music distributed throughout the house, easy, image-assisted

selection from a vast range of TV programmes and web services, and even the ability to operate an entire networked home – tablet apps can handle all of this with ease and at a cost well below that of specialized remote control systems of a similar technical standard.

Wireless and easy to use – images and sound in the home network

Archive systems such as media shelves and racks, albums or shoe boxes are a thing of the past for pictures, music and videos, which can now be stored digitally on PCs, notebooks or network hard drives. Moreover, home networks enable them to be accessed by virtually any kind of modern digital terminal, such as a smartphone, a networked television set or a tablet PC. The introduction of such standards as UPnP and DLNA make it even easier to utilize media in a home network. The relevant devices can automatically recognize one another and can in this way exchange digital content.

The trend towards networked media usage has also had a lasting impact on the hifi world. Nowadays a vast range of music components and surround-sound systems can be linked to the home network, either wired or wirelessly, in order to access and play back centrally stored collections of music. In such scenarios smartphones are an ideal and simple form of remote control, with special apps that invite users to find their way around a wealth of stored music.

Radio also occupies a firm place in today's home media infrastructure. In most cases audio devices linked with the home network can also be used to access the enormous range of domestic and foreign radio stations that are now available on the internet. In this way the web is currently evolving into one of the most important digital distribution channels for radio broadcasting.

Cameras and camcorders: HD, 3D and links to the net

High definition has more or less become the standard for today's camcorders. There is also a rapidly increasing range of models for three-dimensional movie-making. In many cases three separate image sensors are used to provide perfect picture quality, not only for top-of-the-range devices but also for pocket format compact units.

Increasingly digital cameras can be used for moving images too, a capability that is not only confined to individual product sectors. From pocket cameras to the best systems and SLR cameras, all of them are capable of producing videos in HD quality. And a number of models are already available that can take three-dimensional images. There are also various additional and highly practical functions such as an integrated GPS receiver, which automatically records the location where the shot was taken, or a WLAN connection, permitting immediate transmission of the photo or video. Integrated picture processing software and touchscreen displays also help to make these devices even easier to operate.

Processors and operating systems – offering new levels of performance, new alliances

2011 will see the commercial launch of entirely new series of processors with chip architectures in which the main processor and the graphics unit share the same semi-conductor chip. This has spectacular implications for video performance, enabling portable computers such as netbooks to display moving images in full HD quality without any judder and in full screen mode. Similar integrated types of processors are now helping to give the first smartphones the same sort of capabilities.

The type of operating system has a significant part to play in determining the standard of performance and functions. This offers opportunities for new alliances because the new versions of tablet PC operating systems will in future harmonize with the processors used in almost all tablets and smartphones. One thing is already certain: tomorrow's consumers will be able to choose from a wide range of different types of devices and operating systems.

For the benefit of the planet – energy efficiency and green technologies

The power consumption, for example, of television sets has already fallen drastically in recent years, and this applies to those with LCD screens as well as plasma models. This development has been accompanied by statutory regulations, but the industry itself, acting on its own initiative, has always been a major force in promoting the trend for reduced consumption, a trend that is being continued by the innovative new sets being introduced in 2011. It is no longer unusual to find sets of a size that complements any living room, with a consumption of well under 100 watts, yet

capable of providing brilliant, high definition pictures. The transition to LCD sets with LED backlighting is making a major environmental contribution too. They are replacing the luminescent tubes containing mercury as well as helping to reduce power consumption. Other environmentally harmful substances were eliminated from the manufacturing process some years ago, such as flame retardants containing halogens and lead-based soldering compounds. Single-variety, labelled plastics also assist the recycling process. In this way the consumer electronics industry is not only improving the quality of life and making it more enjoyable, but it is also helping to reduce the environmental impact.