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EBV launches microsite for TI reference designs

EBV Elektrolink and Texas Instruments, which share more than 20 years of collaborative history, have extended their cooperation with a new microsite dedicated to specially selected reference designs.

Electronic system development engineers are constantly under the enormous pressure of creating the best functional design in the shortest possible time. Those in this situation who have access to suitable reference designs adaptable to their specific needs have more time to individualise total package solutions and create real added value for their customers.

"With the TI Designs, EBV Elektrolink offers customers real added value," says Markus Krämer, supplier development manager EMEA for Texas Instruments products at EBV. "EBV has carefully examined the very diverse and fully functional set of reference designs created by Texas Instruments over the last few years under the name of TI Designs. These reference designs are out-of-the-box which means they can be used as they are, or modified to meet the wishes of target system development engineers."

EBV also supplies the necessary Gerber and layout data, parts lists etc., as well as test and simulation data, explains Texas Instruments' corporate account manager for EBV, Sascha Thierichen: "Altogether TI currently provides access to more than 410 reference designs and 2000 special power designs, and every month more are added. The strategic pre-selection by EBV specialists provides the user with significant time savings."

The designs include conductive path routing on the printed circuit board (PCB), which minimises interference while optimising energy efficiency. At the start of this long-term design-in support initiative, EBV chose one reference design for each of its technology segments from the array of TI Designs and uploaded it to the new www.ebv.com/designs micropage. More reference designs are in the pipeline for the Internet site.

"With the support of at least 100 application engineers enabling coverage throughout Europe, EBV provides the perfect starting position for this highly complex and technical project," explains Thierichen. "The high level of complexity goes hand in hand though with the need for explanation and adaptation.

"A reference design is not necessarily suitable for all customers. There are always going to be questions which need answering and it's important the EBV team with its technical know-how can answer the majority of these directly, i.e. without asking for TI's support. EBV's setup and experience cannot be compared with that of other equally important yet differently positioned partners of ours."

Rather than being a matter of TI simply publishing its designs on the EBV micropage, the relevant EBV experts are expected to thoroughly familiarise themselves with the reference designs to make sure they can offer customers the support they require to implement solutions based on them.

The EBV team only needs to contact TI support if the topic is a particularly specialised one. As EBV knows the author of every TI reference design, TI employees can, if necessary, be contacted directly to answer customer queries within a reasonable time.

Complete reference designs

EBV has filtered the TI reference designs according to its vertical segments and its technology and market segments. Development engineers can find the individually selected reference designs on the TI Designs microsite.

"A real EBV added value is the 'Competitive Advice' button for each TI design. This clearly illustrates EBV's deep insight into each market or market segment," explains Markus Krämer, supplier development manager EMEA for Texas Instruments products at EBV. "By clicking this button, website visitors find out why EBV favours the TI reference design, which applications it's particularly suited to, and what special challenges development engineers face who want to implement it. Texas Instruments have been primarily concerned with the technical realisation and provision of the corresponding design data." Users who have any questions can use the EBV website to directly contact the FAE who selected the TI design.

As TI does not change a reference design once it's been successfully tested and finally released, it's conceivable it might need to be amended or reworked one day. As an active creator of the reference design, EBV has a role to play here too. For example, it might implement a new interface if the RS-232 one is no longer compatible with market requirements. EBV also provides input on potential new TI Designs.

Each reference design published at www.ebv.com/designs includes a description of its functions and features, as well as the download link to the circuit diagram data. Besides the block diagram and circuit diagram, development engineers also have access to a design guide with the test and simulation data, design and layout files for the circuit board (Gerber files) and the bill of materials containing all passive and electromechanical components.

Markus Kraemer gives some background information on the evolution of the TI Designs: "Depending on the design, TI uses up to 17 different circuit calculator variants (test variants, etc.) but sometimes only one or two. 32 different simulation models, 46 different PCB export models and 40 different thermal calculation models, combined with our WEBENCH designer tool, means there's no need for development engineers using the software calculation or web interface page to learn about any other specialist design tools. They can carry on working in the design environment they're familiar with."

A good example of how extensive these tools are is TI's thermal simulation using real MOSFET data. This tool allows the thermal profile to be precisely calculated for circuit boards fitted with the respective MOSFET. Development engineers can choose between Gerber, SPICE and/or other calculation and simulation models.

Within the scope of the WEBENCH Power Designer, Texas Instruments provides users with access to 1073 design calculators, 602 simulation models, 144 ways of exporting PCB data and 180 thermal models.

Reference designs for five market segments

EBV has already published its first online reference designs for the industrial, automotive, consumer, healthcare and renewable energies market segments.

The design for the industrial market is a low-power gas sensor platform which can be used with a diversity of gas sensors and allows sensor signals to be forwarded via Bluetooth Low Energy, Zigbee RF4CE, 6LoWPAN or ANT. With TI's gas sensor app for iOS, Apple mobile devices can perform straightforward monitoring of gas concentrations.

For the automotive market, EBV specialists have selected a camera module based on an Aptina camera sensor. This design is suitable for numerous vehicle camera applications ranging from virtual mirror systems through to ADAS (Advanced Driver Assistance System) applications.

The universal power supply has been designed with consumer applications in mind. This reference design has an output of 5 V at 1,2 A, and besides fulfilling the relevant safety (EMC) regulations, also meets Energy Star 6 requirements.

In the healthcare sector, EBV is presenting a reference design for a heart rate meter on the new microsite. A purely optical method is used to measure heart rate, and the data can be transferred via Bluetooth Low Energy to a tablet or smartphone. With this sophisticated fitness application, the user no longer needs to wear a chest belt as heart rate is measured by a watch-like device worn on the wrist.

Inverters or combiner boxes in the renewable energies sector benefit from a reference design which reliably detects electric arcs and flashovers in DC voltage systems and triggers the corresponding system alarm, thereby considerably reducing the risk of an electric arc causing a fire. There is an easy-to-use GUI for this system which allows development engineers to quickly change the detection parameters.

Reference designs for four technology segments

EBV has already selected and published online the first reference designs for its four

technology segments (FPGA, Identification, LightSpeed and RF & Wireless).

For example, a galvanically separated Profibus interface operating from 3,3 to 5 V and with a data rate of 40 Mbps was selected for the FPGA technology segment. This reference design paves the way for particularly compact designs, is equipped with a fail-safe receiver and can tolerate voltage spikes of up to 4000 V.

The first reference design published by EBV for customers in the identification technology segment is equally suitable for pairing applications in the consumer, automotive and industry sectors; and in the medical branch, it can be used to fetch sensor data. As a subsystem for NFC and authentication applications, it is able to forward data to a host controller via an I²C, SPI or UART interface.

Clicking on the LightSpeed button on EBV's TI Designs web page will take visitors to the MSP430-based control system reference design for a DALI interface. This will be of particular interest to manufacturers of domestic, office, shop and architectural lighting systems.

EBV's first reference design in the series for the RF & Wireless technology segment implements audio data streaming via SimpleLink Wi-Fi. With this solution, end users can distribute music through their existing infrastructure, with the music recorded, transmitted and played back with 16-bit sampling at a rate of 16 kHz.

For more information contact EBV Electrolink, +27 (0)21 402 1940, capetown@ebv.com.

New colour metrics proposed for characterising lighting

Accurately quantifying the colour rendition characteristics of a light source is a complex problem.

Many aspects of colour rendition, such as colour fidelity, colour discrimination or colour preference, should be simultaneously considered during the design and specification process. At present there is no one metric or measure that can accurately quantify all aspects of colour rendition and/or identify the most desirable light source for every application.

The Illuminating Engineering Society (IES) has now published a technical memorandum – TM-30-15 – which describes a method for evaluating light source colour rendition that takes an objective and statistical approach, quantifying the fidelity (closeness to a reference) and gamut (increase or decrease in chroma) of a light source. The colour metric applies to the characterisation of both LED-based solid-state lighting (SSL) and legacy sources, and has been proposed to the International Commission on Illumination (CIE) for adoption as an industry standard.

Although based on the new colour samples, the new R_f fidelity metric is similar to CRI, while the new R_g gamut metric is based on the Gamut Area Index (GAI). The new method also generates a colour vector graphic that indicates average hue and chroma shifts, and which helps with interpreting the values of R_f and R_g.

TM-30-15 provides equations and direction for calculating R_f and R_g, including the spectral reflectance functions for the 99 CES (colour evaluation samples). It is accompanied by a software tool to aid in calculation and display of the results; access information for the software tool is provided in the publication.

The IES TM-30-15 colour rendition method consolidates and synthesises numerous research efforts that have been ongoing for several years, and was developed by representatives of the manufacturing, specification and research segments of the lighting industry. The technical memorandum is available for purchase from the IES website.

For more information visit www.ies.org

www.dataweek.co.za



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