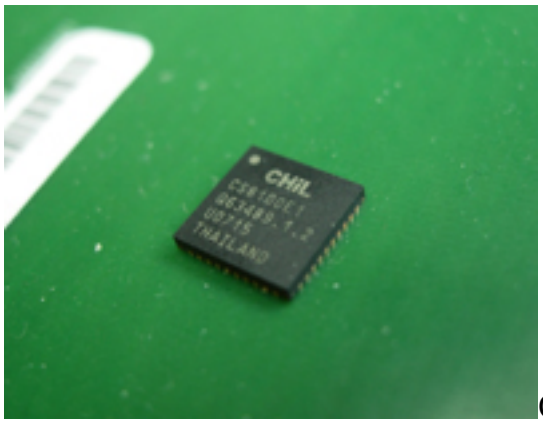
Digital/Mixed-signal Buck Controller Supports Intel VR11.x Designs



CHiL Corporation introduced the CHL8100 device, which integrates digital control techniques into a mixed-signal multiphase synchronous buck controller to offer support for core voltage and load requirements and flexibility for Intel VR11.x processors. The controller is targeted at VR designs using up to four interleaved synchronous buck phases and capable of delivering up to 150A, and it allows designers to digitally configure the switching frequency of each phase from 200 kHz up to 1 MHz. By storing device parameters in embedded non-volatile memory, designers can optimize their design without changing external components. The controller generates a PWM frequency using a very stable and highly accurate digital clock. Its advance non-linear digital PWM control techniques are said to reduce jitter and noise and, in the process, address the fast transients generated by modern high performance microprocessors. In most cases, the non-linear response of the CHL8100 allows designers to eliminate two or more bulk capacitors as well as several ceramic capacitors needed in comparable analog solutions, according to the company. A current balancing algorithm automatically balances current across each phase during DC as well as transient operation. By controlling the current dynamically across all phases, this controller allows designers to more effectively avoid the saturation of inductors allowing them to use lower cost components. Moreover, this same capability helps designers minimize the output voltage oscillations common to designs using analog controllers and build more efficient systems. The companion CHL8500 MOSFET driver supports switching frequencies up to 1 MHz. Each driver is capable of driving at least a 3 nF load with a 3A sink current. A variable adaptive non overlap control helps minimize diode conduction time and prevent both high side and low-side MOSFETs from conduction to deliver reliable and efficient operation. The company also provides a customized Intuitive Power Designer GUI that can be used to easily access, set, modify and monitor the parameters. The CHL8100 is priced at $1.49 in 1000-unit quantities, and theCHL8500 is priced at $0.39 in 1000-unit quantities.

CHiL Corporation
978-640-0011, www.chilsemi.com [1]

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[1] http://www.chilsemi.com/