

China's 8-core Godson processor details to be shared at IEEE forum

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(Phys.org)—China's new 8-core Godson processor will be a key point of interest at the San Francisco IEEE International Solid-State Circuits Conference (ISSCC) from Feb. 17 to 21. The Godson processor to be discussed at the event is a homegrown chip, to be launched for PCs and servers. The processor is a departure from Advanced Micro Devices and Intel designs. Interest will be in the chip itself and its message that, in this era, China is not be dismissed as a producer that re-produces without innovation but as a China focused on building its own ecosystem that can support its IT industry. The 8-core Godson-3B1500 is made using the 32-nanometer process and has 1.14 billion transistors.

This is a 40-watt Godson CPU that may be targeted for desktop, laptop or servers. The IDG News Service said the cores differ in design not only from the ARM CPUs in mobile devices and also from x86 CPUs from Intel and AMD used in PCs.

Godson is based on an MIPS64 CPU instruction set from [chip designer MIPS](#) and Android 4.1 has been ported to MIPS architecture. Unlike other CPUs, Godson chips do not support Windows OS. They run on variants of Linux. Information about the Godson-3B1500 will be described at the event in February, said the IDG report. The IEEE ISSCC is the flagship conference of the Solid-State Circuits Society, also described as the premier forum for advances in solid-state circuits and systems-on-a-chip.

Last year, *IEEE Spectrum* [took notice](#) of the processor's design, the work

of which is led by Beijing-based chief architect Professor Weiwu Hu at the [Chinese Academy of Sciences](#). "The Godson has an eccentric interconnect structure," this report said, for relaying messages among multiple [processor cores](#). While Intel and IBM have worked on chips that shuttle communications merry-go-round style on a ring interconnect, the Godson connects cores using a version of the gridlike system, a [mesh network](#). Architects elsewhere have commented on the mesh construct as an energy-saving design. The Godson 3B1500 has a clock speed of 1.35GHz, 172.8 gigaflops of performance, drawing 40 watts of power.

Research for the chip started in 2001-2002, with a 32-bit Godson-as the first CPU coming out of an initiative that is described as a "holistic" technology investment program, in that China's chip development efforts serve the goal of a hardware and software infrastructure that can reduce reliance on outside sources. Since 2008, chips based on 64-bit Godson CPU designs have been used in laptops. Last year, a supercomputer was announced with the ShenWei processor SW1600 based on the Godson CPU design.

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