



2.11.07 - Ben Ames, IDG News Service - PC World

Following their march from standard processors to dual-core and quad-core designs in 2006, Intel researchers have built an 80-core chip that performs more than a teraflop of operations (trillions of floating point operations per second) while using less electricity than a modern desktop PC chip.

First described by Intel executives at a September trade show, the chip fits 80 cores onto a 275-square millimeter, fingernail-size chip and draws only 62 watts of power—less than many modern desktop chips.

The company has no plans to bring this “teraflop research chip” to market, but is using it to test new technologies such as high-bandwidth interconnects, energy management techniques, and a tile design method to build multicore chips, said Jerry Bautista, director of Intel’s tera-scale research program. He spoke in a conference call with reporters on Friday before presenting technical details of the research at the ISSCC (Integrated Solid State Circuits Conference) trade show in San Francisco. Intel has discussed the ‘era of tera’ before.

Intel engineers are also using the chip to explore new forms of tera-scale computing, in which future users could process terabytes of data on their desktops to perform real-time speech recognition, multimedia data mining, photo-realistic gaming, and artificial intelligence.

Until now, that degree of computing performance has been available only to scientists and academics using machines like ASCI Red, the teraflop supercomputer built by Intel and its partners in 1996 for U.S. government researchers at Sandia National Laboratories, near Albuquerque, New Mexico. That system handled a similar amount of computing as the new chip, but demanded an enormous 500 kilowatts of power and 500 kilowatts of cooling to run its nearly 10,000 Pentium Pro chips.

Shrunk onto a single chip, that power would allow average consumers to use their PCs in new ways. They could use improved search functions on the vast amounts of digital media stored on home desktops, searching large photo archives for specific attributes such as all the shots where a certain person is smiling, or where that person is posing with a friend, Bautista said.

Running at 3.16 GHz, the new chip achieves 1.01 teraflops of computation—an efficiency of 16 gigaflops per watt. It can run even faster, but loses efficiency at higher speeds, performing at 1.63 teraflops at 5.1 GHz and 1.81 teraflops at 5.7 GHz.

The processor saves power by shunting idle cores into sleep mode, then instantly turning them on as they’re needed. Each modular tile has its own router built alongside the core, creating a “network on a chip.”

Despite using such an efficient grid, the researchers found they could actually hurt performance by adding too many cores. Performance scaled up directly from 2 cores to 4, 8, and 16. But they found that computing performance began to drop with 32 and 64 cores.

“If we simply added more than 16 cores, we would get diminishing returns, because the threads and data traffic would not be used properly, so the cores get in the way of each other. It’s like having too many cooks in the kitchen,” said Bautista.

To solve the problem on the new chip, they used a hardware-based thread scheduler and faster on-chip memory caches, optimizing the way data flows from memory into each core. To improve the design, Intel researchers plan to add a layer of “3D stacked memory” under the chip to minimize the time and power required to feed the cores with data. Next, they will create a mega-chip that uses general purpose cores instead of the floating-point units used in the current design.

Steve Jobs Finds Support in DRM Debate

1.14.07 - Jennifer LeClaire - newsfactor.com

The industry debate over whether to put the kibosh on copy protection that safeguards digital music is heating up, and more industry stakeholders are speaking out in favor of Apple CEO Steve Jobs’ controversial suggestion to ditch digital-rights management.



Jobs sent an open letter to record labels last week asking them to eliminate DRM from their music libraries. While Warner Music stood strong against the notion and EMI is leaning toward DRM-free distributions, Sony and Universal have not yet come out with a stance on the issue.

As the DRM debate continues, the rumor mill is beginning to churn. Reports are now circulating that Amazon, LimeWire, MySpace, and Yahoo

Music are working on DRM-free MP3s to compete with Apple’s iTunes.

Jobs Not Alone

Despite Warner’s vehement response to Jobs, the Apple chief is not alone in his views about DRM. Dave Goldberg, a senior Yahoo chief, is taking sides with the iPod-maker, according to news reports. So is SanDisk founder and CEO Eli Harari.

Even Microsoft Chairman Bill Gates, a longtime Jobs rival, has expressed concern that DRM technologies are complicating digital music sales.

EMI is already experimenting with DRM-free MP3 releases from Norah Jones, Lily Allen and Relient K. “The results, so far, have been very positive and the response from fans has been enthusiastic,” EMI said in a published statement. “The lack of interoperability between devices and platforms is increasingly becoming an issue for consumers and EMI has been engaging with its various partners to find a solution.”

Kevin Lee, who runs Monster Music, agreed with EMI’s take. Monster Music negotiated DRM-free files with Universal and its multiplatinum rock band 3 Doors Down. “DRM is a complex and political issue, but digital music compatibility is even more complicated to consumers and limiting to the industry,” he said in a statement.

Musical Chairs

Slowly but surely, the industry appears to be heading toward a new distribution model. The recording industry has an ongoing case study with eMusic, said Gartner analyst Mike McGuire. “eMusic has pioneered subscription services that consumers are comfortable with and open

[see DRM on back](#)

Tonight...

- 7:00 Help desk - Tom Davis
- 7:00 **MagicTime!**
New members - Frank Smith
Dues (\$3) - Ray Kallman
- 7:15 Meeting place update (if necessary)
Ray & Lyle Sanders
- 7:30 **Creating Secure Passwords**
Ray

Wrap-up - Frank

Standard Password Advice



Tarmac Member - Ray Kallman

An excellent source for information on passwords: <http://geodsoft.com/howto/password/>
The following list of don'ts combines all the common recommendations plus one. It accounts for password cracking tool capabilities. "Redundant with" indicates the rule is a specific example of an already stated general rule. These are listed their order of importance.

Do NOT:

1. Use your account name or any data that appears in your computer record.
2. Use any word or name that appears in any dictionary, reference or list regardless of case changes; especially do not use character strings that appear in password cracking tools' word lists or bad password lists <<http://geodsoft.com/howto/password/common.htm>> .
3. Phrases and slang with or without white space. Redundant with 2. See below <http://geodsoft.com/howto/password/password_research.htm#phrase> .
4. Use any mythological, legendary, religious or fictional character, object, race, place or event. Redundant with 2.
5. Use acronyms. Redundant with 2.
6. Use alphabetic, numeric or keyboard sequences; many such sequences are included in cracking tools "word" lists. Redundant with 2.
7. Titles of books, movies, poems, essays, songs, CDs or musical compositions. Redundant with 2.
8. Vary the character sequences obtained from any of the foregoing items by any of the following methods:

- a. Prepend or append symbols, punctuation marks and / or digits to a word.
- b. Use words with some or all the letters reversed.
- c. Use conjugations or plurals of words.
- d. Use words with the vowels deleted.
- e. Replace letters with like looking symbols or digits.

A = 4	I = !
a = 2	l =
C = (l = 1
E = [l = !
E = {	l =
e = 3	O = 0
h = @	S = 5
G = 4	S = \$
l = 1	Z = 5

- f. Replace digits with like looking letters or symbols.

0 = O
3 =]
3 = }

- g. Use only the first or the last character in uppercase. Redundant with 2.

- h. Use only vowels in uppercase. Redundant with 2.
- i. Use only consonants in uppercase. Redundant with 2.

9. Use any personally related information <http://geodsoft.com/howto/password/password_advice.htm#personal> .
10. Use anything you can imagine being collected into a list.
11. Use a publicly shown example good password.
12. Use great vanity license plates. In the future, may be redundant with 2.
13. Transliterate words from other languages.
14. Repeat any character more than once in a row.

DO:

1. Use at least 8 characters.
2. Include a digit or punctuation.
3. Use upper and lower case.
4. Choose a phrase or combination of words to make the password easier to remember.
5. May be two words separated by a non-letter non-digit.
6. May have non printing characters.
7. Use different passwords on different machines.
8. Change password regularly and don't reuse passwords or make minor variations such as incrementing a digit.

The suggestions overlap as they come from different sources. Most users and some systems will have real difficulty with non printing characters.

Personally Related Information

Most people choose passwords that are easy to remember. One way to make passwords easy to remember is to pick passwords or parts of password that are directly related to oneself. Generally these are considered to be poor password choices. Below is a list of all the personally related information that **should not be used**. It's listed in the order in which this information is most likely to be used in forming passwords:

- * One's names and initials.
- * One's account name.
- * Names of immediate family members.
- * Names, breeds or species of pets.
- * One's birthday.
- * Family member's birthdays.
- * One's vehicle make, model, year.
- * Hobbies, interests and related words.
- * One's job title.
- * Employer's name.
- * Job related words.
- * Friend's names.
- * Street numbers or names, city, county, state or zip code for home, work, family or friends.
- * Phone numbers for home, work, family or friends.
- * Social security numbers for self and immediate family.
- * License plate numbers.
- * Birthplace including street address.
- * University or college name.
- * College major.
- * High school name.
- * Student or employee ID numbers.
- * Serial numbers from consumer products.

"and permutations and combinations" added to each of the foregoing. Names include first, middle, last and maiden names, where applicable.

DRM

continued from front page



MP3s," he explained. "They only sell songs from independent labels, but they have a solid customer base and it's growing."

Although McGuire doesn't expect a wholesale industry change any time soon, Inside Digital Media senior analyst Phil Leigh said a sea change is inevitable. DRM is a problem for consumers, he argued, and labels will begin moving to open up back catalogues of classic artists to test the waters.

"Record labels are having a hard time popularizing new releases; they've historically relied on radio and MTV, but those venues have lost a lot of their input primarily because the audience is going to the Internet." Leigh said, arguing that the record labels are going to have to put free content on the Internet in order to stimulate interest in new releases.

Flipping the Switches

That free content could appear on ad-supported sites such as Spiral Frog or Rock River Music that share revenues with the labels. Rock River Music offers podcasts that contain free music sponsored by major corporations. Chrysler Corporation, for example, sponsors a 30-minute collection of Johnny Cash tunes.

Leigh said the record labels don't need to flip all the switches at once. Like EMI, they can release a few titles at a time, measure the impact, and decide how to move forward.

If the labels open a back catalog and see digital and CD sales decline, there is solid evidence in favor of DRM. If the opposite occurs, he added, then the record companies have been "creating a lot of angst" for consumers and online music stores alike with "no legitimate reason."



The Tarmac Vaporware Gazette, named in honor of past president Jerry Rowe, is published for each meeting by smitty's printshop, a non-existent shop specializing in things of little or no importance to the world at large. Send your comments, good or bad, to smittysprintshop@mac.com.

TarMac "Control Panel"

Brian Fountain, president
Tom Davis, vice-president
Ray Kallman, treasurer
Lyle Sanders, user group ambassador
Jamie Lewis, master-at-arms

other panel members

Jan Cook
Cindy Huffman
Lynn McAlpine
Frank Smith

Tarmac By-laws

If you show up you're a member
If you speak up you're an officer
If you stand up you're the president

website: homepage.mac.com/tidewatermug
e-mail: tidewatermug@mac.com