

**Protect your embedded programs
against unwanted accesses!**

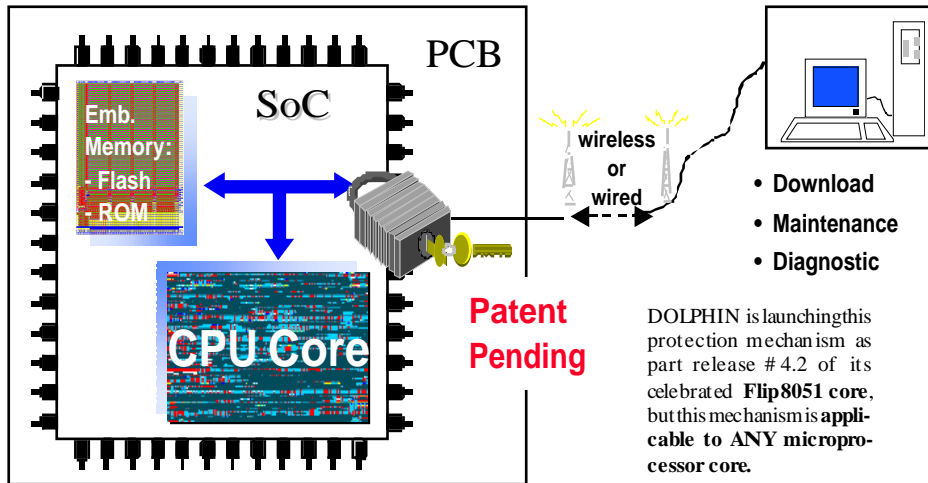
Does your embedded program contain:

- sensitive data?
- important know how?



With today's microcontrollers, **hackers** can easily Read or Write the contents of memories embedded with a CPU in your SoC, e.g. **through the emulation pins with development tools!**

With our brand new solution, the **program developer only** has complete control over memory access; he may **authorize selectively memory Read and Write operations** on either **data memory** or **program memory** associated with **any CPU core**.



- Download
- Maintenance
- Diagnostic

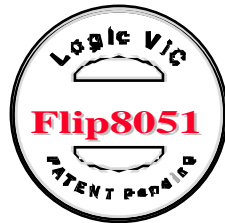
DOLPHIN is launching this protection mechanism as part release # 4.2 of its celebrated **Flip8051 core**, but this mechanism is **applicable to ANY microprocessor core**.

Additionally this unique solution allows to:

- maintain, if required, pins for emulation of **any version of the chip** (debug, production...)
- perform **in-situ (Remote) diagnostic**
- perform **in-situ (Remote) maintenance**
- **download in-situ** new releases or upgrades of your valuable embedded application

Our protection mechanism is implemented by means of a slight modification of the microprocessor core and is set through the link to its usual software development tools.

For more details, please contact: flip@dolphin.fr



Flip8051 promotion sheet

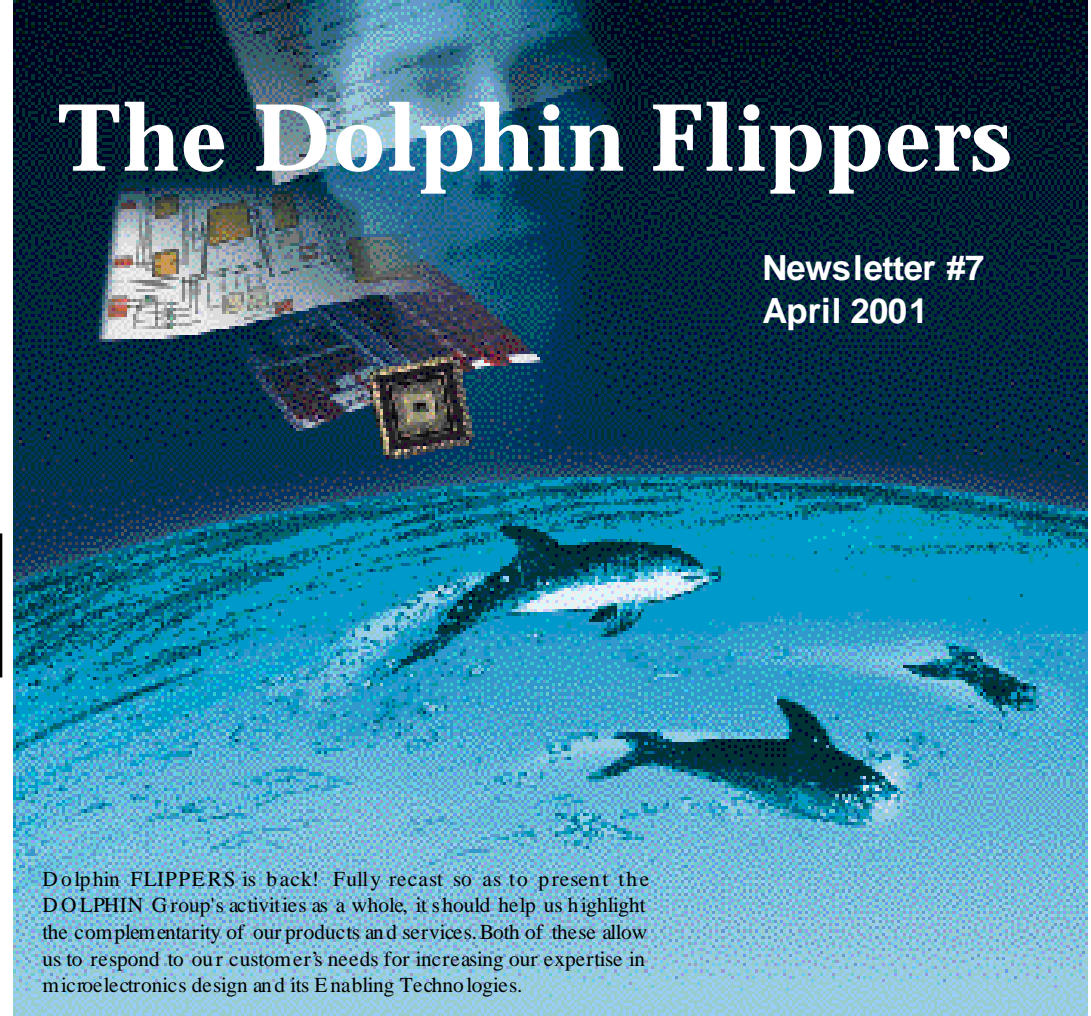


DOLPHIN Integration
39, Avenue du Granier
BP 65
F-38242 Meylan
France

Phone: (33) 4 76 41 10 96
Fax: (33) 4 76 90 29 65
www.dolphin-integration.com
flip@dolphin.fr

The Dolphin Flippers

Newsletter #7
April 2001



Dolphin FLIPPERS is back! Fully recast so as to present the DOLPHIN Group's activities as a whole, it should help us highlight the complementarity of our products and services. Both of these allow us to respond to our customer's needs for increasing our expertise in microelectronics design and its Enabling Technologies.

Two new Product Marketing Managers have joined our team in order to develop our catalog and satisfy your needs as much as possible. In the same way, our continued growth implies customized solutions in your daily language.

Feel free to contact us at asia@dolphin.fr for the Chinese language, at nippon@dolphin.fr for the Japanese language, at deutsch@dolphin.fr for the German language or nafta@dolphin.fr for American English, French or Spanish!

One of the next editions will be focused on DOLPHIN service activities with consultant delegation in France but also throughout Europe and as far as North America or Japan.

Good reading!

The sales and marketing team.

Flip8051-CS.....	1
<i>The fastest 8051 enriched with DSP functions...</i>	
Benchmark method.....	23
<i>For solving cross-talk issues...</i>	
New release for GDS Display.....	3
<i>Ultimate performance optimization</i>	
Protection against piracy.....	4
<i>Dolphin's patent...</i>	

www.dolphin-integration.com

A cookbook approach for comparing objectively memory generators: Why?

TRAP #1

How to cope with a generator with *several thousands of memory instances* whereas providers propose one or two of the most regular memory instances for comparison?

TRAP #2

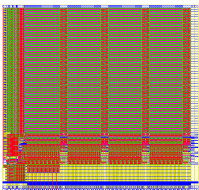
About the generators to compare, are *same process conditions* used for performance data delivered?

- Is power consumption calculation based on maximum parasitic extraction values?
- Does the memory area include power supply rails?

TRAP #3

About the comparable generators, are the delivered performance data based on the *same calculation method*?

- What are the test vector assumptions for computing power consumption?
- Are performances given for the same aspect ratio knowing as speed and power consumption may vary drastically from an aspect ratio to an other?



Comparing objectively memory generators within the same process or astride two different processes remains a multidimensional task for designers. To make such a comparison simple we apply a benchmarking method for an objective comparison of memory generators.

In fact, relying on the sole data as commonly provided by memory suppliers may limit the objectivity of the comparison.

The problem is that:

- each supplier may deliver its evaluation results based on different assumptions!
- each supplier may pick and choose its best local instances for a fake yardstick!
- each supplier may pick and choose its best weights for biasing statistics!

Prerequisite rules:

- Any benchmark must be defined independently of generators and of providers
- Random selection of instances by a relevant benchmark prevents any bias



For more details, please contact: ragtime@dolphin.fr

High quality performance Audio-amplifier for driving speakers / headphones

The output audio amplifier product line is designed mainly for driving low impedance loads (8, 16, ... Ω) like headphones or small loudspeakers required in MP3 decoders or mobile handsets. Both single ended or differential bridged tied load configurations are provided with Signal over Noise ratio up to 90 dB and Total Harmonic distortion better than 0.022 % (or -73 dB) on 16 Ω load.

Figure of merit is defined by multiplying the factors "Signal over Noise Ratio" in decibels, "Bandwidth" in Hertz and "Output Voltage" in Vrms, and by dividing with "Output Impedance" in Ohms and "Power Consumption" in micro-Watts.

$$F = \frac{\text{dB} \times \text{band Hz} \times \text{Vrms}}{\Omega \times \mu\text{W}} = \frac{90 \times 23900 \times 0.4}{16 \times 2400} = 22.4$$

The cells used from the CODAT kit have been designed for ensuring a safe and fast migration towards deep submicron CMOS processes.

«For witnessing our thankfulness as well as for commemorating this joint success, we deeply wish, upon this achievement of second generation, to let it be known to the microelectronics community», declared Project Manager Kobayashi-san of the first System LSI division of NEC Electron Devices.

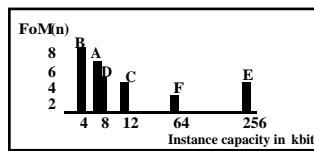
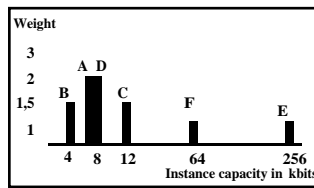
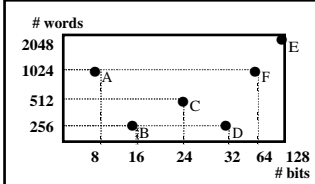
How to use a vendor independent benchmark?



- **Area (mm²)**
 - Including power supply rails driving 1 pF on output
 - aspect ratio
- **Power consumption (mA/MHz)**
 - Fast models, junction temperature = -40 °C, Vdd=2.0 V, Cload = 0.5 pF, ...
 - For calculation 50 % of memory is filled with "0" and 50 % with "1" - measurement on 4 cycles...



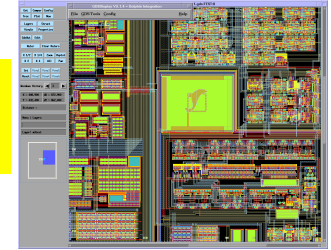
$$\text{FoM}(n) = \frac{\text{frequency}(n)}{\frac{\text{area}(n)}{\text{capacity}(n)} \times \text{Power consumption}(n)}$$



$$\text{FoM}(\text{generator}) = 5.75$$

(9x1.5 + 6.29x2 + 5.54x2 + 4.12x1.5 + 3.33x1 + 5.11)/9

Ask for the GDS Display 3.2 release!



Speed and memory performances

More than ever, GDS Display is the FASTEST Viewer and Processor for native GDSII databases.

- Load your big databases **2 times faster** than in the last version!
- Memory occupation **divided by 2 to 3** for hierarchical files!
- Read compressed files
- Load and view large databases

Cadence Interface

View with GDS Display your layout with the **same aspect as Cadence!** Owing to our interface with Cadence you will keep colours, hatching, displaying layers order...

New functions

- Make physical comparisons with the **XOR function**. You will now be able to check whether two databases are equivalent with no possible error!
- Print on HPGL and Postscript with the **PLOTTER function**.

Display performances

We have considerably improved the quality of our displaying screen. GDS Display supports now any angle (for text objects or references) and displays path whatever their orientation are.

Improvements

- Ability to put environment variable in the GDS Display Default file
- Possibility to put your GDSII file in parameter on your command line



If you are interested by testing those new functions, please, feel free to contact us by email: gds2@dolphin.fr or by phone: +33 4 76 41 74 05