

Update on GreenArrays

SVFIG Forth Day, 2010



Plan of the afternoon

- Company Progress and Plans
 - Details of Hardware to be delivered in Spring
- Selected Applications & Development Tools
 - Michael's Stereo Vision
 - Charley's MD5 hash
 - Development cycle, softsim, IDE
- Chuck's Fireside Talk
- Yes, there will be a break.



Where we were last Forth Day

- Four successful shuttle runs at new foundry
- Waiting for GA144f18a and second GA4f18b
- Looking for VC funding
 - Based on single killer app without an app partner
 - Exposed to VC demands in goals, management, and exit strategies
- Initial funds exhausted
- Ready for a New Plan

The old prescription for failure

- How can a company claim to be a reliable source of chips and technology while it has a higher duty to some VC's exit strategy?
- How can any responsible engineer design our chips into a product when we cannot provide samples in 10-100 quantity nor quote firm prices and delivery dates for production parts?

Progress since Last Forth Day

- Company reconfigured for bootstrapping
 - Company owned and controlled by founders
 - Nondiluting SEC Reg D Private Placement filed
 Committed to reliably supplying chips
- GA144 released to production
 - Wafer processing has begun
 - Estimated start of testing 15 February
 - Estimate shipment of eval chips and boards Q2
 - Software & docs being prepared & released

Company configuration in 2010

- Nevada C Corporation, HQ Incline Village
- Owned by founders + one outside stockholder
- SEC Reg. D (PPM) Offering in progress for \$5M
- Operating with minimal expenses
 - Slave Labor: Unpaid team of 20 + 4 consultants
 - Inexpensive offices, most people work at home
- Potential to mobilize a network of Affiliates
 - Friendly companies (FORTH, Inc. for example)
 - Individual consultants; the Forth Community

What we have

- A revolutionary, disruptive chip technology
 - 6 consecutive working prototypes in last 18 months
 - Exceptionally low power, low energy, high performance, small size, low cost computers
- Simple, effective, low cost design tools
- Portable, easily configurable architecture
- Suitable for any embedded application
 - Particularly those infeasible without a combination of the above characteristics
 - For example prostheses, security devices

What we are doing with it

- Taking our first chip to production
 - Evaluation chips and boards ship in Q2 2011
 - Advance orders with 50% deposits being taken
- Marketing chips to potential early adopters
 Offering application and design collaboration
- Generating documentation and software
- Raising money for activity going forward

GA144-1.2 Characteristics

 See website for documentation on f18a technology and GA144-1.2 chip. Data Books and other references are being posted as they are completed.



GA144 Evaluation Board



As delivered, eval board boots eForth from flash and talks to terminal on RS232 port B. Ports A and C are available for IDE operations on chips 0 and 1. Chip 1 may be fully isolated from chip 0 with the exception of the SERDES connection.

What makes the GA chips special

- Low energy per unit work (≈7 pJ/instruction)
- Instant suspension/resumption per node
- High performance (≈666 MIPS/node)
- Low cost (<3 cents/computer in quantity)</p>
- Small size
- Software-defined I/O
- Multilevel programming

2011 Development Roadmap

- Ultra-Low-Leakage process (<10 nW/node)</p>
- VDD (I/O) up to 5v
- On-die bulk SRAM
- On-die NVM (SONOS flash?)
- ... and more.

Remainder of the afternoon

- Michael: Stereo vision application
- Jeff: Overview of development cycle
- 10 MINUTE BREAK
- Charley: Softsim and testbeds

- Jeff: Code in ROM
- John: External memory architecture
- Steven: Testing
- More as time permits
- Chuck's annual Fireside Talk



Thank You!

