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Marvell brings JavaScript to the smallest devices ever with today's most comprehensive implementation of JavaScript 6th Edition in the open source KinomaJS application framework

Marvell introduces two new hardware prototyping products for IoT innovators: Kinoma Element is instantly and always connected, interfaces with off-the-shelf sensors, and is ideal for prototyping embedded devices poised for mass production; Kinoma HD is a scriptable stick that transforms any HD screen into a display for IoT devices, handhelds, the cloud, and web content

To tweet this news, copy: Marvell expands its @Kinoma line for IoT prototypers--#JavaScript 6 implementation, new hardware prototyping products. <http://kinoma.com/media/2015/loTline/>

SANTA CLARA, Calif. and SAN FRANCISCO, June 24, 2015 /PRNewswire/ -- [Marvell](#) (NASDAQ: MRVL)—a worldwide leader in providing complete silicon solutions from mobile communications to storage, Internet of Things (IoT), cloud infrastructure, digital entertainment and in-home content delivery and Kinoma® software enabling the "Smart Life and Smart Lifestyle"—today announced an expansion of its solutions for embedded and Internet of Things (IoT) product prototyping. The Kinoma implementation of JavaScript 6th Edition, and two new hardware prototyping products, will propel the next wave of connected device prototypers and manufacturers.



"Technology enabling the smart lifestyle must be easy to use, seamlessly connected, and beautifully responsive. It also needs to be open source to give the developers of elegant, high-performance products the interoperability, flexibility, and stability that open source offers. The open source KinomaJS application framework is our most advanced software technology for customers, partners, and developers building on Marvell silicon," commented Weili Dai, President and Co-Founder of Marvell.

JavaScript 6th Edition implementation

JavaScript has the most momentum of any professional programming language because it is easy to get started with, fast, and forgiving. JavaScript's continuously evolving developer-base for the web, growing adoption server-side, and rich potential in IoT position it as the dominant language of choice for today's programmers.

Sixth Edition is the biggest update to the JavaScript language since it was invented. The update, formally known as ECMAScript 6th Edition or ES6, contains more than 400 individual changes to make the language more concise, improve performance, and integrate support for modules. The addition of modules to the language is fundamental to architecting reliable, long running devices, making JavaScript 6th Edition the right foundation for connecting IoT products.

Kinoma's XS6 JavaScript engine, an independent implementation of JavaScript 6th Edition, is:

- **The most comprehensive** implementation of JavaScript 6th Edition (a.k.a. ES6) today. The most widely used [conformance test suite](#), which measures a 6th Edition implementation's completeness and compatibility, ranks KinomaJS at 96 percent, far ahead of any other JavaScript engine.
- **The smallest** implementation of JavaScript. Running well on devices with as little as 512 KB of RAM, the power and convenience of JavaScript is now practical on mass market consumer hardware.
- **Fast.** Performance enhancements in the implementation deliver application start-up improvements of 4x Kinoma's implementation of JavaScript 5th Edition, and efficient binding to native C code connects to OS and hardware features.

"The software tools used to develop embedded hardware products typically lag leading edge software development by many years. IoT developers want the benefits of the latest

language improvements, but the memory and CPU performance requirements put it out of the reach of mass-market hardware. With the XS6 engine in KinomaJS, we are bringing the latest advances in JavaScript to embedded developers before they arrive on the web," said Peter Hoddie, Kinoma VP at Marvell.

New hardware prototyping products

Kinoma today introduced two new connected hardware prototyping products:

1. **Kinoma Element** is the smallest JavaScript-powered embedded product prototyping platform. Built around Marvell's MW302 wireless microcontroller system-on-chip that combines a 200 MHz CPU, 512 KB of RAM, and Wi-Fi, Kinoma Element is designed to connect products to the cloud, to mobile, and to other IoT devices.

With a pair of eight pin expansion ports, Kinoma Element is endlessly configurable to the ideas and plans of prototypers. It works with off-the-shelf sensors, lights, motors, and actuators, which are programmed with the same JavaScript hardware pins module as Kinoma Create.

Execute in Place (XIP) technology is key to running JavaScript applications on a device with only 512 KB of RAM. The Cortex M4 in Kinoma Element saves RAM by using XIP to run native ARM code directly from flash memory. The XS6 JavaScript Engine runs scripts directly from flash memory by implementing XIP for JavaScript byte code. This unique combination of XIP for both native and byte code frees the majority of RAM in Kinoma Element for application data.

Kinoma Element is designed to take ideas from drawing board, to prototype, through to mass production using Marvell's microcontroller line. Numerous companies—including August, Blossom, iHome, Rheem, and Xiaomi—have adopted other microcontrollers in this line for their IoT products.

2. **Kinoma HD** is a scriptable stick for developers who want to display visually rich content on the biggest displays. Kinoma HD's HDMI output plugs into an HD capable display, connecting wirelessly to IoT devices, iOS and Android handhelds, cloud services, and content from web-based apps. The stick is plug-and-play once slotted into a display's full-sized HDMI port, hooked up to a USB power supply, and connected to a Wi-Fi network.

Kinoma HD is thumb-sized, yet powerful enough to handle rich media presentations of an IoT ecosystem. For example, with Kinoma HD, developers can provide an engaging visual experience of IoT product performance and sensor data.

"We envision a quickly approaching future where 'smart furnishings' transform the traditional tabletops and walls in our homes and workplaces into interactive displays and live content command centers. Kinoma HD is the ideal solution for developers making this future a reality," added Weili Dai, President and Co-Founder of Marvell.

Kinoma HD has 256 MB of RAM, is connected with Wi-Fi g/n/ac, and has HDMI output of 1080p/720p. Kinoma HD is built on Marvell's 88DE3006 1.2GHz dual core system-on-chip, which is part of Marvell's ARMADA 1500 family of video processors found in mainstream consumer electronics products by Google, LGE, Swisscom, and more.

Kinoma's family of customizable products for prototypers— Kinoma Element, Kinoma HD, and the top-selling Kinoma Create— integrate professional-grade hardware, JavaScript 6th

Edition, app development using the open source KinomaJS application framework, and use the same pro-developer tools, making prototyping efficient across product teams.

Pricing & Availability

Kinoma's implementation of JavaScript 6th Edition will be first available in the 3rd Quarter of this year as a free update to Kinoma Create, within the Kinoma Studio IDE, and on the [KinomaJS](#) open source repository.

Kinoma Element and Kinoma HD can be reserved now at <http://kinoma.com/buy/> at the pre-order prices of US\$19.95 and US\$24.95, respectively. Both hardware prototyping products will be priced to make them an easy choice for experimentation and deployment in numbers. They are expected to be available retail in the 4th Quarter of 2015.

Connect with Kinoma at O'Reilly Solid 2015

Kinoma Element and Kinoma HD are featured at O'Reilly's Solid 2015 conference in Kinoma's booth 217 in the Festival Pavilion of San Francisco's Fort Mason Center. Additionally, Peter Hoddie, Kinoma VP at Marvell, is speaking on the panel, "Indiegogo: The feedback channel for your new hardware products" Thursday at 1:15pm–1:55pm in the Cowell Theater. For more information: <http://solidcon.com/internet-of-things-2015/public/schedule/speaker/193660>.

Media Resources

Screenshots, icons and other related media are available for download at kinoma.com/media.

About Kinoma

The Kinoma group's hardware and software prototyping solutions help developers, programmers, and designers rapidly create connected products. The tightly integrated design and engineering team resides at global semiconductor leader Marvell. Marvell acquired Kinoma in 2010 for the team's proven heritage in software architected for high performance on everything from phones and tablets to the Internet of Things (IoT). For more information, visit kinoma.com.

About Marvell

Marvell (NASDAQ: MRVL) is a global leader in providing complete silicon solutions and Kinoma software enabling the "Smart Life and Smart Lifestyle." From mobile communications to storage, Internet of Things (IoT), cloud infrastructure, digital entertainment and in-home content delivery, Marvell's diverse product portfolio aligns complete platform designs with industry-leading performance, security, reliability and efficiency. At the core of the world's most powerful consumer, network and enterprise systems, Marvell empowers partners and their customers to always stand at the forefront of innovation, performance and mass appeal. By providing people around the world with mobility and ease of access to services adding value to their social, private and work lives, Marvell is committed to enhancing the human experience.

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**For Further Information Contact:
Marvell Media Relations**

Rachel Bennett
Kinoma Marketing & Communications Director
Tel: (415) 608-1002
rachelb@marvell.com

Sue Kim
Director, Corporate Communications & PR
Tel: (408) 222-1942
suekim@marvell.com

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