



# CMatos

*Jini™ Network Technology for Non-Java Embedded Processors*  
**For Dallas Semiconductor DS80C400**  
**Network Microcontroller**

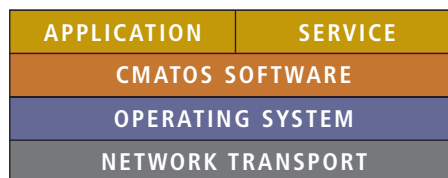
## **CMatos, Jini Network Technology for Dallas Semiconductor DS80C400 Network Microcontroller**

CMatos is an implementation of the Jini Lookup Service and related protocols that enables very small-embedded non-Java processors to offer Java based services. Fully Jini Network Technology compliant, CMatos less than 60KB footprint lookup and discovery protocol enables resource constrained devices, to find each other, interconnect and spontaneously offer or consume services on a network or any computing device that acts as a Jini client.

The DS80C400 Network Microcontroller is used in small sensors and actuators to factory automation equipment. When these devices become Jini enabled with CMatos, they have their own self-contained Jini lookup service, and can offer their intrinsic services and information as a Java object to other Jini clients, independent of wider area network availability. In doing so, these devices have the flexibility to access and utilize services on an ad hoc basis, only when and where needed. This powerful combination of CMatos and DS80C400 opens the door for the multitude of computing embedded devices to participate in the next era of autonomous, machine-to-machine communications.

CMatos extends the reach of Java into non-Java devices and enables legacy devices to become Jini network capable. CMatos is available in even smaller footprints, for devices that do not need to register external services.

### **CMATOS NETWORK ARCHITECTURE**



### **CMatos Key Benefits:**

- A very small non-Java processor can offer information and software services to any computing device that acts as a Jini client.
- Allows devices to have their own self-contained Jini lookup service, which can offer intrinsic services and information to other Jini clients independent of wider area network availability.
- The service could be anything from a simple driver to a full application complete with a Graphical User Interface.
- Extends Jini network functionality to non-Java devices on the edge of the net, making possible an end-to-end pervasive computing solution based on an open standard protocol.

### **CMATOS FEATURES**

**Passed Sun Microsystems Technology Compatibility Kit version 1.2b using Java J2SE.**

CMatos tested on:  
TINIm400 Verification Module  
CMatos Lookup Code – 16KB  
CMatos Client Download Code – 36KB  
Data Memory – 5KB

### **System Requirements:**

Task Scheduler  
IP Networking  
Total Memory Requirements (This includes all the infrastructure used by CMatos such as the task scheduler and the network stack)  
Code Memory: 100KB  
Data Memory: 50KB

### **CMatos Design Principals:**

1. Is fully Jini technology compliant having passed Sun Microsystems' Technology Compatibility Kit.
2. Is not a surrogate or proxy implementation. It makes no assumptions about network accessibility. Highly mobile devices can form ad hoc personal area networks to share services among themselves, without requiring access to a wider area network.
3. Is not Remote Method Invocation (RMI) based. The computational and storage overhead associated with RMI services is avoided. At the same time, it is possible to support RMI client operations. Thus, CMatos is fully transparent to other Jini technology-enabled systems.
4. Can fit on very small devices, with limited processing power and storage.

### **Developer Benefits:**

- Jini applications are not restricted to the enterprise level, but can be developed and deployed across a broad range of platforms, from big-iron servers, PCs, and laptops, to PDAs or even embedded sensors, control systems, and appliances.
- Reduction in time and cost to develop and deploy applications by leveraging standard Java and Jini building blocks.
- Create applications and services that work across platforms.
- Take advantage of Jini technology's ability to function reliably in dynamic network environments. Points of failure can be minimized or eliminated, maximizing network service access.
- Minimize management and maintenance overheads.
- Future proofs applications used by clients, ensuring they are always current, avoiding costly downtime for upgrading and versioning issues.

### **What is Jini Technology?**

Jini Network Technology developed by Sun Microsystems Inc., defines mechanisms to support the federation of machines or programs into a single, dynamic distributed system. Devices participating in such a system can enter and leave at will, can tolerate network and system variability, and can offer "services" and resources to other devices and systems in the federation. A "service" refers to an entity that can be used by a person, group of people, organization, program or other service. The service can be anything that can be offered by a computational, networked device, including access to a network, computation, storage, information, access to hardware (such as a printer, access point, etc.) or another user.

### **Ordering Information:**

CMatos SDK for Dallas Semiconductor DS80C400 Network Microcontroller is available for download from PsiNaptic's Developer Community page at: [www.psinaptic.com/developer](http://www.psinaptic.com/developer)

For more information on commercial licensing arrangements contact [sales@psinaptic.com](mailto:sales@psinaptic.com) or call PsiNaptic at (403) 720-2531

### **ABOUT PSINAPTIC**

**PsiNaptic implements distributed computing frameworks such as Jini technology for use in very small microprocessors. By combining this technology with Java™ technology and standard wireless protocols such as Bluetooth®, PsiNaptic works with OEMs to add low cost, low power, wireless networking and spontaneous interaction capabilities to everyday objects.**

For more information on PsiNaptic and our pervasive computing technologies visit us at: [www.psinaptic.com](http://www.psinaptic.com)

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