

Real Time Operating Systems (RTOS) for the Internet of Things (IoT)

https://marketpublishers.com/r/R7DFB457C22EN.html

Date: April 2016 Pages: 45 Price: US\$ 1,995.00 (Single User License) ID: R7DFB457C22EN

Abstracts

Overview:

A Real-time Operating Systems (RTOS) is an OS that manages hardware resources, hosts applications, and processes data on real-time basis. RTOS defines the real time task processing time, interrupt latency, and longer period reliability of both hardware and applications, especially for low powered and memory constrained devices and networks. The key difference between RTOS and a general purpose OS lies within its high degree of reliability and consistency on timing between application's task acceptance and completion.

RTOS is a critical component to build comprehensive embedded systems for Internet of Things (IoT) solutions for both consumer and industrial IoT (IIoT). Embedded RTOS is a key consideration to build mission critical, reliable IIoT applications across various industry verticals including industrial equipment, automotive, healthcare, telecommunications, government solutions, and more.

Real Time Operating Systems (RTOS) for The Internet of Things (IoT) provides analysis of RTOS for IoT including hard vs. soft RTOS, embedded RTOS programs for rugged hardware, low power network and connectivity for RTOS, peripherals and tools to support processing of embedded systems in IoT, and leading RTOS platforms including both open source and proprietary. The report also provides forecasts for the 2016 - 2021 period for embedded RTOS revenue including rugged hardware, software, and microcontrollers. The forecasting includes a regional view for embedded RTOS revenue and the installed base of devices for the same period.

All purchases of Mind Commerce reports includes time with an expert analyst who will



help you link key findings in the report to the business issues you're addressing. This needs to be used within three months of purchasing the report.

Target Audience:

Internet of Things companies

Wireless device manufacturers

Wearable technology suppliers

Digital signal processor providers

Telephony infrastructure providers

Computer and semiconductor companies

Embedded hardware, software and OS providers

Mobile/wireless network operators and service providers

Next generation application developers and content providers

Consumer electronics merchandisers and application providers

Report Benefits:

Understand RTOS in IoT

Embedded RTOS Revenue Forecasts 2016 - 2021

Embedded RTOS Installed Device Forecast 2016 - 2021

Understand the future of embedded RTOS in Internet of Things

Identify leading embedded RTOS companies to leverage and support IoT

Understand the impact of embedded RTOS on real-time IoT and sensor



networks

Companies in Report:

AMD ARM

Atari

Atmel

Contiki

FreeRTOS

Fujitsu

Google

Green Hill

Huawei

IBM

Intel

Linux

Mentor Graphics

Micrium

Microsoft

NEC



NXP

OpenWSN

Renesas

RIOT

Samsung

Sharp

Texas Instruments

TinyOS

Wind River



Contents

1.0 INTRODUCTION 1.1 WHAT IS RTOS? **1.1.1 REAL-TIME KERNEL 1.2 REAL-TIME SYSTEMS AND RTOS 1.3 RTOS FEATURES** 1.3.1 MULTI-TASKING 1.3.2 SCHEDULER **1.3.3 PRECISE TIMING 1.3.4 MEMORY MANAGEMENT** 1.3.5 RELIABILITY **1.3.6 TASK COMMUNICATION 1.4 FUNCTIONS OF RTOS 1.4.1 TASK MANAGEMENT** 1.4.2 SCHEDULING **1.4.3 RESOURCE ALLOCATION 1.4.4 INTERRUPT HANDLING 1.5 HOW RTOS IS DIFFERENT? 1.5.1 PRIORITIES 1.5.2 INTERRUPT LATENCY 1.5.3 PERFORMANCE** 1.6 WHY RTOS? 1.7 BENEFITS AND DRAWBACKS OF RTOS **1.8 TYPES OF RTOS** 1.8.1 HARD REAL-TIME 1.8.2 FIRM REAL-TIME **1.8.3 SOFT REAL-TIME** 2.0 RTOS SOFTWARE, ARCHITECTURE, AND VALUE CHAIN 2.1 RTOS VALUE CHAIN 2.2 RTOS SOFTWARE 2.2.1 INDUSTRIAL VS. CONSUMER IOT REQUIREMENTS 2.2.2 LINUX AS A PLATFORM 2.2.3 EMBEDDED SYSTEM RELIABILITY 2.3 RTOS ARCHITECTURE 2.4 RTOS DESIGN 2.5 RTOS APPLICATION 2.6 RTOS PERFORMANCE MATRIX 2.6.1 MEMORY FOOTPRINT



2.6.2 INTERRUPT LATENCY 2.6.3 TIMING KERNEL SERVICE 3.0 EMBEDDED RTOS MARKET PROJECTIONS 2016 - 2021 3.1 EMBEDDED RTOS MARKET REVENUE 3.1.1 EMBEDDED RTOS HARDWARE REVENUE **3.1.2 EMBEDDED RTOS SOFTWARE REVENUE** 3.1.3 EMBEDDED RTOS MCUS (MICROCONTROLLER) REVENUE 3.2 EMBEDDED RTOS MARKET BY APPLICATION SECTOR 3.3 EMBEDDED RTOS MARKET BY REGION 3.4 RTOS EMBEDDED DEVICES 3.5 RTOS EMBEDDED DEVICES BY APPLICATION 3.6 RTOS EMBEDDED DEVICES BY REGION 4.0 RTOS PLATFORM AND PROVIDER ANALYSIS 4.1 LINUX ZEPHYR PROJECT 4.2 GOOGLE BRILLO AND WEAVE **4.3 FREERTOS** 4.4 CONTIKI **4.5 RIOT** 4.6 TINYOS 4.7 OPENWSN 4.8 WIND RIVER VXWORKS 4.9 ARM MBED OS 4.10 LITEOS (HUAWEI) 4.11 WINDOWS 10 FOR IOT **4.12 NUCLEUS RTOS** 4.13 GREEN HILL'S INTEGRITY 4.14 SAMSUNG'S TIZEN 4.15 MICRIUM ?µC/OS-II **5.0 RECOMMENDATIONS**



Figures

FIGURES

Figure 1: Features of RTOS Figure 2: RTOS Task States and Inter Task Connectivity Pattern Figure 3: Types of RTOS and Deadline Diagram Figure 4: RTOS Value Chain, Correlation, and Parties Figure 5: Software Stack of Low Power Industrial IoT and Consumer IoT Device Figure 6: Architecture of RTOS: Kernel and Modules Figure 7: Interrupt Latency as RTOS Performance Matrix Figure 8: Global Embedded RTOS Combined Market Revenue 2016 - 2021 Figure 9: Global RTOS Embedded Hardware Sales Revenue 2016 - 2021 Figure 10: Global RTOS Embedded Software Sales Revenue 2016 - 2021 Figure 11: Global RTOS Embedded MCUs Sales Revenue 2016 - 2021 Figure 12: RTOS Embedded IoT Connections 2016 - 2021 Figure 13: Integrity RTOS Architecture Figure 14: Tizen IoT Ecosystem



Tables

TABLES

Table 1: RTOS Embedded Revenue by Application Sectors 2016 - 2021

Table 2: Embedded RTOS Revenue by Region 2016 - 2021

Table 3: RTOS Embedded Devices by Application 2016 - 2021

Table 4: RTOS Embedded Devices by Region 2016 - 2021



I would like to order

Product name: Real Time Operating Systems (RTOS) for the Internet of Things (IoT) Product link: <u>https://marketpublishers.com/r/R7DFB457C22EN.html</u>

> Price: US\$ 1,995.00 (Single User License / Electronic Delivery) If you want to order Corporate License or Hard Copy, please, contact our Customer Service: <u>info@marketpublishers.com</u>

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <u>https://marketpublishers.com/r/R7DFB457C22EN.html</u>

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name: Last name: Email: Company: Address: City: Zip code: Country: Tel: Fax: Your message:

**All fields are required

Custumer signature _____

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms & Conditions at <u>https://marketpublishers.com/docs/terms.html</u>

To place an order via fax simply print this form, fill in the information below and fax the completed form to +44 20 7900 3970