radisys_signature_logo (2).png



###### Nokia Solutions and Networks

###### RFQ Proposal Response

###### AB6 Release 6.0

**ACPI6-A / CPRT6-A**

###### February 21st, 2014

Revision 1.0

February 21st, 2014

This document contains information which is confidential, privileged or otherwise protected from disclosure. This information is intended for the exclusive use of Radisys Corporation.

February 21st, 2014

Beate Kleindienst

Category Manager

Nokia Solutions and Networks

Karaportti 5

02610 Espoo

Finland

Subject: **Radisys Proposal to NSN AB6 Release 6.0 RFQ for ACPI6-A and CPRT6-A**

Dear Beate:

Thank you for including Radisys Corporation in your assessment of ATCA suppliers for the AB6 Release 6.0 RFQ issued on January 24th, 2014.

We welcome the opportunity to compete for your business and trust the enclosed response and supporting documentation is sufficient enough to consider Radisys on your short list of potential suppliers for ACPI6-A and CPRT6-A assets making up this RFQ proposal response.

Per instructions in this RFQ, our proposal response follows the quotation content and format specified in Section 2.13 of the NSN RFQ:

* Pricing 🡪 located in Section 3.1 of this proposal;
* Compliance to Contractual Requirements 🡪 located in Section 3.6;
* Radisys’ Response to Products/Service Requirements & Specifications 🡪 located in Sections 3.7 through 3.10;
* Compliance to Service Requirements 🡪 located in Section 4;
* Compliance to Product Lifecycle Requirements 🡪 located in Section 5;
* Radisys’ Support of NSN R&D Requirements 🡪 located in Section 6;
* Compliance to Logistics Requirements 🡪 located in Section 7.1;
* Radisys’ Compliance to Other Requirements 🡪 located in Section 7;
* Radisys’ Compliance to NSN Supplier Requirements 🡪 located in Section 3.4;
* Radisys’ Compliance to NSN Environmental Requirements 🡪 located in Section 3.5.

In addition to this RFQ proposal response, NSN requested compliance responses to a variety of appendices associated with this RFQ can be found in zip files supplied to NSN external to this proposal.

The same holds true for any supportive material associated with our proposal response; they are located in the external zip file accompanying this proposal response.

Following the Executive Overview (below), this proposal response follows the same order and section headings provided in the NSN AB6 ACPI6-A RFQ.

### Executive Overview (Lokenberg/Ruperal/Webber/Alleman)

Thank you for considering Radisys Corporation in your assessment of ATCA suppliers for the AB6 Release 6.0 ACPI6-A program.

While we know Nokia Solutions and Networks has many supplier choices for this program, we believe Radisys is your best choice for ACPI6-A and CPRT6-A assets of this January 24th, 2014 RFQ. The combination of well aligned specifications, proven field deployments and Radisys’ unique ability to pre-validate all assets together in an NSN configuration gives NSN the best time to market and total cost of ownership for the AB6 Release 6.0 program. We believe we are the only company which can offer NSN real COTS boards – now!

Our companies have much history together over the past 15+ years with Radisys being a trusted supplier and technology advisor to NSN for a number of programs, some ATCA (AB1, AB2, AB3, AB5) and some non-ATCA (IPA2800, DX200). That history has shown Radisys to be extremely flexible to the needs of NSN while jointly creating a business model that aligns with NSN expectations.

Radisys has also demonstrated worldwide leadership in ATCA platforms, blades and software.

* Radisys has an ATCA product portfolio comprising over twenty-five plus ATCA blades, companion software modules and integrated ATCA platforms. According to VDC Corporation, Radisys is the worldwide market leader in x86 CPU, ATCA 10G/40G switch, 10G NPU and 10G/40G Platform solutions;
* Radisys has more 10G ATCA field deployed products than our competition. Our experience includes ATCA implementation with more than 25 customers worldwide in wireless, IMS, IPTV, test/measure, and military applications. Add to this the fact Radisys has previously been awarded ATCA designs at NSN for the AB1, AB2, and AB3 programs;
* The Radisys-proposed ATCA products to this RFQ – our ATCA-1200 Managed Quad AMC Carrier Blade (for ACAR1-C) and our ATCA-7300 EZChip NP4 Packet Processing Module (for ANPI1-A), are currently released ATCA products available any interested customers;

NSN has familiarity with these two products Radisys is positioning in response to this RFQ. There has been ongoing dialogue occurring over the past several months between our CTO, Marketing, and Engineering organizations and the NSN AB5 Release 5.0 team with respect to insight into NSN features and functionality of ACAR1-C and ANPI1-A technical specifications. Furthermore, Radisys has supplied the NSN lab with our ATCA-7300 EZChip NP Packet Processing Blade for evaluation. Our ATCA-1200 AMC Carrier Blade was recently shipped to NSN for evaluation in parallel with this RFQ proposal response.

We appreciate the opportunity to compete for the Release 6.0 assets of AB6. The combination of our long partnership, aligned product roadmaps, production availability of assets, and our unique ability to provide platform validation in NSN AB configurations will enable both companies to meet your time to market goals for ACPI1-A and respective rear transition module CPRT6-A (RTM).

We look forward to discussing our offer further in upcoming face to face meetings.

# 1. INTRODUCTION

**Legal Disclaimer**

This proposal provided by Radisys Corporation is in response to the NSN RFQ issued on January 24th, 2014 for AB6 Release 6.0 ACPI6-A and CPRT6-A assets.

By responding to this RFQ, Radisys acknowledges the legal disclaimer included by NSN.

# 1.1 Radisys Corporation

Radisys Corporation and Nokia Solutions and Networks (NSN) have a fifteen plus year partnership culminating in 40+ designs with over 900K+ units shipped to date.

We strive to be a virtual division to NSN and as such, we have a deep understanding of NSN processes and needs. We enjoy one of the strongest engineering-to-engineering relationships between our companies today.

Radisys Corporation is a current supplier to NSN for a number of ATCA programs including AB.1, AB.2, AB.3 and AB.5. This 15+ year relationship has provided both custom PFS solutions as well as ATCA standard product solutions for a number of NSN programs.

# 1.2 Purpose of RFQ Proposal Response (entire section here needs refresh)

The purpose of this proposal response first and foremost is to position Radisys as a leading supplier for ACPI6-A and CPRT6-A assets of the AB6 Release 6.0 program.

Secondly, our intent in submitting this proposal is to communicate to NSN that Radisys is offering ………… as noted in your RFQ.

This proposal response addresses all aspects of the AB6 Release 6.0 RFQ. Radisys has significant history in supplying ATCA products & services to your current AB.1, AB.2, AB.3 & AB.5 programs while maintaining a track record of quality and leading-edge technology solutions for past and current AB programs.

Our response to this RFQ for the above referenced assets allows NSN to consider Radisys as a sole sourced supplier for these modules being productized in the NSN ATCA AB6 Release 6.0 program.

The intent of Radisys in responding to this RFQ with this proposal response is to position with NSN ATCA products that are available today for immediate early access application development. Both proposed Radisys products, our ATCA-1200 AMC Carrier Blade and ATCA-7300 EZChip NP Packet Processing Blades, require no further development if NSN is willing to relax some of your requirements as noted in our compliance matrices response. The fact these products can be ordered and delivered based on current product inventory and lead-times allows NSN to begin deploying these assets into your AB5 Release 5.0 program within the noted time-lines of this RFQ.

Key features and attributes of our A47000 Series Compute Blade that benefits ACPI6-A include:

* Single slot PICMG 3.0/3.1 compliant
* Dual Socket 12-Core Intel Haswell EP Processors
* Dual-dual Star Topology allowing up to 160 Gbps to the fabric in an active-active configuration
* Up to 128GB DDR4 VLP Memory
* On board Dual mSATA SSD
* Front Panel I/I supporting dual GbE, 10GbE ports, USB 3.0 & Flex-console Serial Port
* 75W and 105W processor configurations supporting a range of chassis capabilities
* ETSI and NEBS Ready
* Support for multiple operating systems
* Optional MXM 3.0 interface support for dual 1.8” SSD, Intel Coletto Creek encryption acceleration
* O/S support for Wind River 4.3 (64-bit), Red Hat Enterprise Linux 6.3 (64-bit), VMWare
* Safety certification of UL/EN/IEC 60950-1, CSA 22.2
* EMC certification of PCC Part 15, Class A, EN 550022: 1998, Class A 60950
* Front Panel I/O support for 1xUSB 3.0 connector, 2x1000BASE-T Ethernet connectors (RJ-45) user, 1000BASE-T Ethernet connector (RJ-45) management, 1 Serial Port

Refer to the Radisys-supplied data sheet on our A47000 Series Compute Blade (located in external zip file) for additional information.

# 2. INSTRUCTIONS FOR RFQ PROPOSAL

# 2.1 Correspondence

All correspondence regarding this RFQ proposal response can be made through the following Radisys contact:

Michael Lokenberg

NSN Account Manager

[Michael.Lokenberg@Radisys.com](mailto:Michael.Lokenberg@radisys.com) (email)

+(49) 173 2856628 (mobile)

# 2.2 Intellectual Property Rights of Response Documents

Based on the confidential nature of the material provided in the NSN RFQ including all supportive documents, attachments, and appendices, Radisys Corporation acknowledges the sensitivity of this information and will use it for the sole purpose of responding to this RFQ.

# 2.3 Confidentiality

Radisys acknowledges and agrees to the confidentiality aspects of this NSN RFQ subject to confidentiality provisions under valid corporate wide NDA dated May, 22nd, 2008 between NSN and Radisys. There is also a signed NDA between our companies as a prerequisite to receiving this RFQ.

# 2.4 Applicable Law

Radisys agrees to comply with the arbitration rules as set forth in this section of the RFQ.

# 2.5 Validity of Response submitted by Radisys

Radisys acknowledges the requirement that any quotation for products and/or services within this proposal response is valid for 180 calendar days from the date of this proposal. Furthermore, we accept the fact that any quotation terms accepted by NSN can be incorporated into a Purchase Agreement, PDA, SLA, or similar contractual instrument.

# 2.6 Copies of Documentation and Response

Radisys accepts the terms of this section of the RFQ.

# 2.7 NSN’s Right to Reject or Accept Quotation Response

Radisys acknowledges NSN’s right to accept or reject our proposal response to this RFQ.

# 2.8 Costs

Radisys accepts the terms of this section of the RFQ.

# 2.9 Questions & Answers concerning RFQ

For all technical and commercial questions regarding this Radisys RFQ proposal response, please direct them to:

AB6 ACPI6-A & CPRT6-A Technical AB6 Release 6.0 Commercial Questions

Andrew Alleman Chandresh Ruparel

V.P. Platform Engineering Director Product Marketing

[andrew.alleman@radisys.com](mailto:andrew.alleman@radisys.com) [chandresh.ruparel@radisys.com](mailto:chandresh.ruparel@radisys.com)

503-615-1229 (office) 503-615-1293 (office)

For all other questions related to our proposal response, please direct them to:

Michael Lokenberg

NSN Account Manager

[michael.lokenberg@Radisys.com](mailto:michael.lokenberg@radisys.com) (email)

+49 173 2856628 (mobile)

Michael Lokenberg is also the Radisys single point of contact for all question submittals and answer distribution for this RFQ.

# 2.10 Response Evaluation Method

Radisys acknowledges and understands the Total-Cost-of-Ownership proposal evaluation methodology used for selecting suppliers for this AB6 Release 6.0 program.

# 2.11 Schedule

Radisys acknowledges the timelines outlined in this section for RFQ issuance, quotation submittal, business terms agreement, and feedback to suppliers.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | **NSN Schedule** | **Radisys Schedule** | **Comments** |
| NSN submits AB6 RFQ |  | January 24th, 2014 |  |  |
| Quotation Closing Date |  | February 14th, 2014 | February 21st, 2014 | Radisys allowed additional week to respond |
| Proposal Analysis |  | February 24th to March 21st 2014 |  |  |
| Negotiations (price & agreements) |  | March 24th to April 3rd, 2014 |  |  |
| Final Awarding |  | April 4th, 2014 |  |  |
| Contract Signed |  | April 11th, 2014 |  |  |
| P3 Approved |  | August 31st, 2014 | August 31st, 2014 | Radisys Schedule Date assumes an April 2014 Final Awarding. |
| Prototypes to NSN | Delivery arrived @ NSN | August 31st, 2014 | August 31st, 2014 | Date is a no-later-than date for having prototypes on NSN’s site |
| NSN RIS Approved |  | October 31st, 2014 |  |  |
| Supplier HW P5.9 ready | Includes all needed eSW for NSN P5.9 approval; delivery arrived at NSN site | December 31st, 2014 | December 31st, 2014 | Radisys Schedule Date assumes project kick-off starts within 1-2 weeks of Contract Signed |
| P5.9 Approved |  | January 31st, 2015 | January 31st, 2015 | Radisys’ date assume P5.9 Ready is achieved by 12/31/14 |
| Supplier Project Completed (GA) | Ready for P6 | March 31st, 2015 | March 31st, 2015 |  |
| Correction eSW Drop | (Reservation if needed) | April 30th, 2015 | April 30th, 2015 |  |
|  |  |  |  |  |

* NOTE:
  + P5.9 excludes requirement numbers: These requirements require significant effort and will require port to ???????.
  + Prototype unit commit dates in the above table will not support any mutually-agreed-to custom NSN requirements identified elsewhere in this proposal.
  + Product lead-time for ACPI6-A and CPRT6-A is 8-12 weeks ARO without any customer forecast.

# 2.12 Quality of the Products

<add content related to compliance with P7 & P8 VZ Defects in NSN Customer deliveries …>

Please refer to the document entitled Radisys Engineering Practices located in the external Zip File for additional information on current Radisys product quality processes and referenced documentation practices.

# 2.13 Response Content & Format

Consistent with other Radisys proposal responses to NSN RFQ’s, we use Microsoft Word to create the proposal response and include (mostly) excel and MSW documents as supporting material. Occasionally a PDF formatted file is provided as a supportive document. RFQ proposal response is being submitted in English.

This proposal response is being sent to NSN electronically by the RFQ closing date with embedded documents incorporated throughout where applicable or submitted separately from this proposal as requested supportive material.

The Radisys RFQ proposal response is consistent with the NSN AB6 Release 6.0 RFQ format and order as follows:

1. **Pricing**

See Section 3.1 below for Radisys’ response to Pricing Requirements of this RFQ.

1. **Compliance with Contractual Requirements**

See Section 3.6 below for Radisys’ compliance to contractual requirements of this RFQ.

1. **Compliance with Product/Service Requirements & Specifications**

See Section 3.7 – 3.10 below for Radisys’ compliance to the product/service requirements & specifications of this RFQ.

1. **Compliance with Service Requirements**

See Section 4 below for Radisys’ compliance to Service & Maintenance Requirements of this RFQ.

1. **Compliance with Product Lifecycle Requirements**

See Section 5 below for Radisys’ compliance to Product Lifecycle Requirements of this RFQ.

1. **Compliance with NSN R&D Support Requirements**

See Section 6 below for Radisys’ compliance to NSN R&D Support Requirements of this RFQ.

1. **Compliance with Logistics Requirements**

See Section 7.1 below for Radisys’ compliance to Logistics Requirements of this RFQ.

1. **Compliance with Other Requirements**

See Section 7 below for Radisys’ compliance to Other Requirements of this RFQ.

1. **Compliance with NSN Supplier Requirements**

See Section 3.4 below for Radisys’ compliance to NSN Supplier Requirements.

1. **Compliance with NSN Environmental Requirements**

See Section 3.5 below for Radisys’ compliance to NSN Environmental Requirements.

# 2.14 Evaluation Criteria for RFQ

Radisys acknowledges the evaluation criteria used by NSN in deciding supplier award of this program.

# 3. COMMERCIAL REQUIREMENTS

# 3.1 Pricing Requirements

Per instructions in RFQ, Radisys’ pricing for ACPI6-A and CPRT6-A is included in the template provided. Pricing can be found in the RFQ response packet (zip file).

Please note, per NSN instructions, the ACPI6-A Dual Haswell Processor-based Compute Blade pricing includes Haswell processors, switch chips, unit computer and required memory.

All pricing is in USD and is volume-based by year using volume estimates provided in Section 3.1.1 of RFQ. A list of the 20 key components comprising 90% of the ACPI6-A and CPRT6-A BOMs can be found in the file named NSN 33 ACPI6-A\_key\_component\_list\_template\_v1 0-RSYS-Resp-Final (Appendix 33) included in the RFQ response packet (zip file). “Yellow” highlight indicates those BOM components that make up 90% of BOM cost.

# 3.1.1 Volume Estimates

The volume estimates, provided below from RFQ as reference, were used to derive the forward-looking, volume-based unit pricing by year provided in Section 3.1 above. Radisys is also assuming single supplier award for this ACPI6-A program with our pricing in Section 3.1 above.

Should these volumes for ACPI6-A and CPRT6-A exceed or fail to reach these levels, Radisys reserves the right to renegotiate unit pricing based on actual volumes achieved in the out years of this program.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Product Type** | **Product** | **Name** | 2015 | 2016 | 2017 | 2018 | Total |
| **Blade** | **Compute Blade** | **ACPI6-A** | 230 | 1150 | 3450 | 8050 | 12,880 |
| **RTM** | **2x10 GE Ports & Dual HDD RTM for ACPI6-A** | **CPRT6-A** | 115 | 575 | 1725 | 4025 | 6440 |

# 3.1.2 WindRiver 6 BSP

# The PRD (Product Requirements Document) for our A47000 Series Compute Blade includes support for Wind River 6 BSP so Radisys will be compliant to this requirement for ACPI6-A.

# Upgrading from WR 6 to WR7 on our A47000 Series Compute Blade would be supported by Radisys although the effort to do so can’t be quantified at this time. Radisys recommends further discussions with NSN around how this requirement would be structured with respect to investment expense, schedule, and deployment when the need arises.

# All other NSN requirements associated with WR 6 BSP can be met by Radisys.

# 3.1.3 RHEL 6.X

# Like the requirement above, the PRD for our A47000 Series Compute Blade includes support for Red Hat Linux (RHEL 6.X) so Radisys will be compliant to the requirements of this section for ACPI6-A.

# 3.1.4 Other Costs

As noted in Section 3.7.2 (ACPI6-A Requirements Specification) of this proposal response, Radisys is 99.9%+ in compliance with the HPRS requirements of ACPI6-A based on our A47000 Series Compute Blade.

While our proposed COTS-based blade meets most ACPI6-A requirements, it does not meet 100% of them. There will be investment is those areas of the HPRS requirements where Radisys has stated either “Not Compliant”, “Partial Compliant”, or “Compliant” (with reference to NRE investment in ‘Comments’ column) to meet those requirements of this program.

That said, Radisys Engineering has quantified, scoped, and estimated the investment required for each HPRS requirement noted below. Each investment was further categorized as being either “NSN custom” or “Standard Product Feature”. The former has a NRE number associated with it that Radisys would expect NSN to cover for such investment; the latter is shared below with NSN as a cost of doing business and would be absorbed by Radisys.

The HPRS requirements listed below have been categorized as “NSN Custom” and included as part of the proposed NSN NRE:

* AST624 🡪 Unit Bootup sequence follows General FRU Startup
* AST984 🡪 Implementation of ACPI Power State & Management Subsystem Health Sensors
* AST967 🡪 Lock/unlock switchover to redundant copy of eSW component
* AST961 🡪 Single activation of all updated eSW components
* AST962 🡪 Backup copy of current active flash bank contents (LMP, BIOS, IPMC)
* AST986 🡪 eSW upgrade tools to indicate ‘progress’
* AST987 🡪 eSW upgrade tools to log error to non-volatile memory
* AST992 🡪 Bootable upgrade media image
* AST851 🡪 Shutdown of payload when voltage at unit -37.5V
* CPT467 🡪 Processor Thermal Manager On/Off in BIOS
* CPT469 🡪 Processor Thermal Manager to reduce max processor operating frequency
* CPT590 🡪 Guard band time select from BIOS menu
* CPT533 🡪 Correctable error thresholds adjust in BIOS
* CPT547 🡪 Number of correctable processor internal occurrences stored in memory
* CPT556 🡪 Number correctable DRAM ECC occurrences stored in memory
* CPT557 🡪 Read # correctable errors by payload processor
* CPT28 🡪 Adjust DDR Refresh rate in BIOS setup
* CPT52 🡪 Memory location for warm reset counter
* CPT53 🡪 Warm reset counter in BIOS data areas
* CPT328 🡪 Reset type in BIOS data area
* CPT333 🡪 BIOS indication of ware/cold reset
* CPT579 🡪 Blade booting from network
* CPT580 🡪 BIOS boot phase support of select loading source
* CPT68 🡪 Reset type displayed on console
* CPT69 🡪 Warm reset count displayed on console
* CPT70 🡪 BIOS printouts stored in specific memory location
* CPT346 🡪 PXE Boot to use NSN proprietary client
* HPM279 🡪 Get Sensor event status
* HPM240 🡪 BIOS menu support of RTM activation/deactivation/Hot Swap
* HPM369 🡪 IPMC de-assert Power-down
* HPM376 🡪 IPMC command support in BIOS configuration
* HPM255 🡪 IPMC support OEM IPMI commands
* HPM268 🡪 Set System boot options from IPMI controller
* HPM241 🡪 ACPI Power State driven by sensor type
* OS93 🡪 BSP supports 32 bit and 64 bit modes
* DIA6 🡪 Support for NSN HW Diagnostics Spec
* DIA4 🡪 ATF Support
* DIA5 🡪 ATF Diagnostics interfaced with DIMI
* DIA8 🡪 RTM support of Diagnostics

This above list of NSN-specific HPRS requirements can be summarized into the following categories of SW development:

1. NSN-specific Diagnostic Software
2. NSN-specific Custom BIOS requirements
3. NSN-specific Custom IPMI Software

Radisys is asking NSN to cover the above development through a one-time NRE fee of $200K (USD).

The following HPRS requirements listed below have been categorized as “non-NSN Custom” and are considered Radisys investments as a cost of doing business:

* AST969 🡪 eSW Upgrade tools (associated with error reporting)
* AST980 🡪 Console to identify which flash drive used for booting
* HPM374 🡪 OpenHPI 3.x release support
* OS141 🡪 BSP for Wind River Linux PNE 6.x
* OS137 🡪 RHEL Release 6.x
* DIA6 🡪 Support for HW Diagnostics Spec
* DIA10 🡪 CLI & HPI DIMI support of Diagnostics
* DIA20 🡪 Diagnostics interface is HPI DIMI

This above list of non-NSN custom SW deliverables are required for Radisys to achieve (full) ‘Compliant’ and as such, are considered development to be done as a cost of doing business.

Other areas of Radisys investment in this AB6 ACPI6-A program will include the following:

1. Security Requirements (Appendix #45) – Section 3.8.21 of proposal;
2. Ethernet IEEE802.3 Interface Testing (Appendix #43) – Section 3.8.19 of proposal;
3. CPU Blade Error Management (Appendix #42) – Section 3.8.18 of proposal;
4. Southco Ejector Handle Modification (Appendix #3)
5. IOT HW EIT Testing (Appendix #26) – Section 6.2 of proposal;
6. Plugfest – Section 6.2
7. NSN-specified Test Cases (TCs) (Appendix #25) – Section 6.2

Radisys has estimated this entire effort noted above at $750K (USD). This is investment Radisys is willing to make in this program in order to meet NSN requirements and compliancy.

The final area of development for the AB6 ACPI6-A program is a rear transition module (RTM) meeting the NSN requirements in the HPRS. While Radisys has an existing RTM that supports our A47000 Series Compute Blade, that RTM falls quite short of meeting the NSN RTM requirements. Our assessment of those NSN requirements has concluded a NSN-custom RTM design and development is required to be 100% ‘Compliant’ with your RTM specs.

That said, Radisys is asking NSN to cover this RTM development through a one-time NRE fee of $300K (USD).

# 3.2 Currency & Terms of Payment and Delivery

With regards to the requirements of this section, Radisys defers compliance to our current Purchase Agreement (H970001) which defines payment terms, currency, and delivery expectations.

The payment terms based on Nokia Solutions and Networks’ Bank Link Policy is consistent with current payment terms seen on AB2 & AB3 programs.

# 3.3 Warranty Requirement

Radisys is compliant to the warranty requirements in this section of the RFQ for 30 months from Date of Delivery to Buyer (NSN) or 24 months from date of installation at the Customer, whichever occurs earlier.

# 3.4 NSN Supplier Requirements

After review of NSN Supplier Requirements (Appendix 37) as referenced in this section of the RFQ, Radisys has determined we are generally ‘compliant’ with most of the requirements noted herein.

Specifically, our compliance to the following areas of this specification are as follows:

* Environment 🡪 Radisys is an ISO 14001 registered company and as part of this registration we strive to provide environmentally responsible products in an environmentally responsible manner. Our compliance overview can be found on our company website at at <http://www.radisys.com/wp-content/uploads/Radisys_Environmental_Compliance_Statements.pdf> and also provided in the zip file of support documents.
* Occupational Health & Safety 🡪 Radisys Corporation is committed to protecting the health and safety of our employees and customers and the environment in the communities in which we operate. The safety and health of our employees and protection of our environment is a priority consideration in the operation of our business.

* Conflict Minerals 🡪 Radisys is committed to sourcing components and materials from companies that respect human rights, integrity, and environmental responsibility. Radisys expects our suppliers to have in place policies and due diligence measures that will enable us to reasonably assure that products and components supplied to us are “DRC conflict free”.
* Raw Material Content Data Management 🡪 Radisys is using the Electronic Industry Citizenship Coalition and Global e-Sustainability Initiative (EICC-GeSI) reporting template (found in zip file of support documents) to document our compliance efforts with our customers. In turn, Radisys requires that our suppliers not only commit to being or becoming “DRC conflict-free”, but also provide declarations (using the EICC-GeSI reporting template) evidencing such commitment and documenting the countries of orgin from which the supplier directly or indirectly sources tin, tantalum, tungsten and gold.
* Energy Efficiency 🡪 Radisys products do not contain ozone depleting substances and we do not use ozone depleting substances to manufacture our products.
* Risk Management 🡪 Radisys proactively manages risk by utilizing best practices in the selection and measurement of suppliers throughout the supply chain. Radisys has a documented process (PPX-006 called ‘Supplier Approval & Qualification Procedure’) used in defining the process for approving and qualifying new suppliers (i.e. manufacturers). For Radisys-managed critical suppliers, we conduct regular Business Reviews which also covers Score Card evaluations. Our Supplier Performance Procedure (PPX-007) defines the process for compiling, reviewing and reporting supplier performance. This process uses a Supplier Rating Scorecard to rate suppliers’ performance as a mechanism for monitoring and improving supplier quality.
* Business Continuity Management Practices 🡪 For business continuity management practices, Radisys withdrew BS25999 in 2013 replacing it with ISO22301. While Radisys does not have this specific certification (BS25999), we do maintain business continuity management practices as part of our normal business.

* Security Standard Compliance 🡪 While Radisys does not currently have an ISO27001 certification, we align with industry best practices and security standards.
* Supply Chain Security 🡪 Customs-Trade Partnership Against Terrorism is a voluntary US Government program to secure a company’s global supply chain. Radisys is not a C-TPAT certified company and has no plans to apply; however, we may complete C-TPAT supplier surveys for our customers on request.

# 3.5 NSN Environmental Requirements

After reviewing the latest NSN-issued Environmental Appendix date September 4th 2013 (Version 10) and the associated ten embedded objects with Radisys Operations, we believe we can comply to all that is required of these environmental requirements.

The packaging requirements as they relate to environmental impact have been met by Radisys in earlier AB.x programs (ANPI1; AMPP1) and we do not see any requirements we can’t comply to.

This compliance extends to the NSN Substance List, Statement of Conformance to Restricted Substances, Hazardous Substance Table and Environmental Products Declaration.

Should Radisys be awarded this program, the various forms comprising Environmental Requirements would be completed by the agreed-to project milestone.

# 3.6 Contractual Requirements

Today Radisys operates under HW Development Agreement eslni 006 246 (refer to filename NSN.FrameHardwareDevelopmentAgreement.FINAL.6.12.08.pdf in zip file of support documents). A cursory comparison of this agreement with Appendix #36 supplied with this RFQ shows some differences – for example, Sec 15.3 Limitation of Liability was added and Sec 12.4 Epidemic Failure was removed. This followed months of negotiations. Rather than restart this process, Radisys suggests any required changes from NSN to this agreement should start with a redline of that 2008 agreement.

Upon review of both appendices associated with NSN Support Services as noted in this section of RFQ (Appendix #39 Application Program P7/P8 VZ Support and Appendix 40 P7 & P8 VZ Agreement), Radisys’ compliancy response will be “Not Compliant”. Please refer to file named NSN\_VZ\_Dec06-RSYS-Resp-Dec2013 located in zip file for edited comments to this agreement shared with NSN in December 2013 in response to P7 & P8 VZ Defect Support for AB3.

# 3.7 Requirement Specifications

Where requested in the NSN RFQ for Sections 3.7.1 through Section 3.8.21, Radisys has responded with a level of compliance from the four choices specified.

In cases where we indicated “Compliant Later”, we’ve indicated a time-line for being “Compliant”. In cases where Radisys indicated “Not Compliant”, a brief indication of why is provided. If “Partially Compliant” was indicated, further explanation has been provided.

# 3.7.1 Hardware Platform Regulatory & Customer Requirement Specification

Radisys’ compliancy response to the HW Platform Regulatory & Customer Requirement Specification (RCRS) (AB6.0 RCRS – Appendix #1) can be found in the external Zip File provided separate from this proposal response. The NEBS tab within this excel spreadsheet contains our compliance response to the requirements of RCRS.

# 3.7.2 ACPI6-A Requirement Specification

Please refer to the external zip file containing Radisys’ compliancy response to the Requirements Specification for ACPI6-A (Appendix #3).

Of the 488 individual technical requirements comprising the ACPI6-A HPRS, Radisys is “Not Compliant” to a total of 15 requirements. Of those 15 requirements (noted below), dialogue between NSN and Radisys has concluded that eleven (11) of these 15 “Not Compliant” requirements are not required for ACPI6-A (PICMG 3.8/ARTM, backplane clocking, SAS connector).

Of the 4 remaining non-compliant responses, one is related to hot swap switch/button to which Radisys is close to closing with NSN’s acceptance of our proposed solution. Another non-compliant requirement relates to NSN’s preference for ImSn PCB finish for which NSN previously accepted our alternative PCB finish response.

This leaves two (2) remaining “non-compliant” requirements, both related to SMBIOS logging which Radisys does not support. Alternatively, Radisys supports logging done centrally to the SEL. If the SMBIOS logging is an absolute requirement, Radisys would entertain further dialogue with NSN on implementation approaches.

Radisys is also “Partially Compliant” to 8 other ACPI6-A HPRS requirements:

* One of these expected to be (Full) “Compliant” by proposal submittal
* One related to ARTM now currently “not compliant”
* One is due to conflicting requirements in HPRS
* The remainder are legitimate ‘partial compliant’ responses
  + One is tied to Intel’s Advanced Diagnostics which have not been published with sufficient enough information at this time to give a full commitment of compliance to NSN;
    - NSN is aware of this as the Intel material is still under RSNDA while Intel determine a plan for release of this material

Overall, Radisys is 99%+ compliant to the ACPI6-A HPRS requirements with our proposed A47000 Series Compute Blade.

In summary, below are the HPRS references to the requirements currently “not compliant” as noted above:

AST985 🡪 Push Button Hot Swap on Front Panel

AST933 🡪 Zone 3 Connectors PICMG 3.8 compliant

AST934 🡪 Zone 3 K2/A2 Mechanical Keying to RTM (PICMG 3.8)

AST935 🡪 Unit Air flow Seal in accordance with PICMG 3.8 RTM zone 3A

AST212 🡪 Clock derived from system clock (CLK1 or CLK2)

AST930 🡪 Processor shall read selected clock (A or B)

AST931 🡪 Processor shall read status of system clock A and B

AST907 🡪 CLK selection shall be CLK A, CLK B, Unit Internal clock

AST971 🡪 CLKA/CLKB selection shall not revert

AST972 🡪 Search for CLKA/CLKB shall revert

AST756 🡪 PCB finish preferably Immersion tin (ImSn)

CPT100 🡪 SMBIOS event log shall be supported

CPT101 🡪 SMBIOS log viewable and configurable via BIOS setup tool

CPT486 🡪 External synchronization provided by backplane telco clocks

STG69 🡪 SAS connector of type SFF-8088

In summary, below are the HPRS references to requirements whereby Radisys has noted “Partial Compliance”:

AST238 🡪 Under voltage shutdown

AST936 🡪 Unit Management per IRTM.0 R1.1 Intelligent Rear Transition

AST998 🡪 FRU Compliant to NSN Security Requirements for HW Modules Spec

CPT498 🡪 Chipset used is Intel Cave Creek (PCH)

CPT565 🡪 Use of SMI or NMI for Error Reporting by BIOS

CPT347 🡪 BIOS Phase less than 25 seconds in case of warm reset

CPT318 🡪 BIOS Phase less than 30 seconds in case of cold reset

HPM268 🡪 Unit IPMI Controller capable of issuing Set System Boot options & Get System Boot Options

It is Radisys’ understanding that we will not be penalized for being “Not Compliant” to those HPRS requirements noted above whereby NSN indicated these requirements are not important (mandatory) for ACPI6-A.

# 3.8 Supplemental Specifications

Radisys has reviewed all NSN-provided product requirement specifications in order to have a better understanding of what is required by NSN and Radisys’ ability to meet those requirements.

# 3.8.1 ACPI6-A Concept Document

Radisys Engineering, PLM, and CTO organizations have reviewed and factored the content from the ACPI6-A concept document (Appendix #2) into our compliance responses to the ACPI6-A & CPRT6-A Requirements Spec (above).

# 3.8.2 FRU Start Up in ATCA HW Platform

# The requirements noted in Appendix # 5 FRU Start Up in ATCA HW Platform are consistent with same FRU Start Up requirements seen in past recent NSN RFQ’s (ANIP1 & ACPI5). Framing our compliance response around CPU blades only, these requirements have been previously provided on previous AB.x programs. This includes DHCP Option 61 which was implemented on ANPI1.

# Radisys will be compliant with the FRU Start Up requirements in this section.

# 3.8.3 SW Delivery Format Specification

The requirements noted in Appendix # 28 – SW Delivery Format Specification are consistent with what has been provided on earlier NSN ATCA blades (AMPP1, ADSP1, AHUB3). These features (requirements) will need to be ported to ACPI6-A using existing build tools to match the requested software delivery format. By doing so and by the P3 project milestone, Radisys will be compliant to this section.

# 3.8.4 ATCA Blade HW Platform FRU Information Specification – common part

# Radisys will be compliant to this requirement. Radisys agrees to provide ACPI6 FRU Info record according to NSN specification “ATCA Blade HW Platform FRU Information Specification, common part”. Even though this is a NSN customization of the FRU Info record, Radisys is willing to support NSN requirements and to deliver ACPI6 blades with the FRU Info record per NSN request without additional charge.

# 3.8.5 ATCA HW Blade Design Guide – Onboard Voltage & Thermal Sensors

After reviewing the ATCA HW Blade Design Guide – Onboard Voltage, Power Consumption & Thermal Sensors (Appendix #7), Radisys believes compliance is already met or can be met through adjustments made in firmware (FW) on our proposed A47000 Series Compute Blade.

Below are specific design guide requirements where such adjustments would be required:

* Sensor Naming Convention 🡪 any adjustments required will be addressed through FW;
* Temperature Sensor Thresholds Tmax 🡪 -10C to +10C will be addressed through FW;
* Voltage Sensing on each of two -48V Inputs 🡪 will be addressed through FW;
* POL Voltage Sensors 🡪 support for NC & NR events will be addressed through FW;
* Whole blade power measurement algorithm 🡪 will require adjustment as needed; no events generated;
* ‘Get Power Reading’ command 🡪 this will be supported by FW.

# 3.8.6 Cooling Algorithm Specification

# After reviewing the cooling algorithm specification (Appendix #32), Radisys Engineering believes this specification does not apply to front blades and rear transition modules (RTM).

# 3.8.7 NSN Package Marking Specification

Radisys is compliant to the requirements to the extent they were met with previous AB.x program deployments. Where NSN Package Marking requirements do not align with current Radisys standard practices, a custom SKU would be established to deal with the deltas.

# 3.8.8 Industrial Design Requirement Specification

After reviewing the requirements in Appendix #9 Industrial Design Requirements Specification, Radisys believes these can be satisfied with custom Lexan and custom stick on label.

The Radisys proposed A47000 Series Compute Blade uses a Southco 600 series ATCA handle, not the Southco 500 series referenced in Section 5.1 Physical Ergonomics. However, there is continuing ongoing dialogue between Radisys and NSN with regards to a compromise in meeting this handle requirement.

# 3.8.9 NSN Product Package Requirements

Radisys is compliant to these requirements to the extent they were met with previous AB.x program deployments. Where NSN product package requirements do not align with current Radisys standard practices, a custom SKU can be established to deal with the deltas.

# 3.8.10 NSN Product Marking Specification

Radisys is compliant to these requirements to the extent they were met in previous AB.x program deployments. Where NSN product marking requirements do not align with current Radisys standard product marking practices, a custom SKU can be established to deal with the deltas.

# 3.8.11 NSN Simplified Marking Guideline

Radisys is compliant to these requirements to the extent they were met in previous AB.x program deployments.

# 3.8.12 HPI DIMI – FUMI Implementation Guide

After reviewing the FUMI Implementation Guide (V1.1), Radisys has determined a plug-in for OpenHPI is required to interface to our HPI Agent running on the Radisys ACPI6-A blade to meet the guidelines of this section.

HPI DIMI-FUMI is currently part of a Radisys Plan of Record (PoR) software roadmap commitment for late 2014 consistent with AB6 HW products P5.9 approval milestone.

Hence, Radisys will be “Compliant Later” with the commitment noted above.

# 3.8.13 NSN Traceability Principles

Radisys is compliant to the Traceability requirements defined in NSN-Radisys Frame Hardware Development Agreement 1.0C, Contract # eslni 006 246.

Radisys is “Non-Compliant” to Sections 7.4 and 8.2 of this agreement however. Both Radisys and our CM partner have traceability for critical component lot number but not the entire BOM. This is consistent with our response to this requirement from the ANPI1-A proposal in October 2012.

# 3.8.14 Diagnostic Specification

Radisys Plan of Record for its standard product variant of ACPI6 blade included hardware diagnostics with HPI DIMI interface. However, NSN requirements specified in HW Diagnostics Specification (v1.0) are significantly more comprehensive with many requests to comply with NSN formats and design approaches (e.g. interfacing with OpenHPI). Radisys would require significant investment to comply with HW Diagnostics spec and DIA requirements from HPRS. The key investment areas are:

1. Integration with OpenHPI
2. New ACPI6 DIMI tests required by NSN (e.g. SFP, Line I/Fs, etc…)
3. DIMI interface to ATF
4. ATF support
5. Diagnostics Output Management (Chapters 2.1, 2.2, 2.3)
6. On-line diagnostics and self-recovering

Please refer to the embedded document outlining Radisys delivery plan for ACPI6 HW diagnostics. Required effort to comply with NSN specific HW diagnostics requirements is captured as part of proposed Software NRE.

# 3.8.15 Root Cause Analysis Info Request Introduction

With respect to the Root Case Analysis (RCA) requirements noted in both Appendix #16 (RCA Input Info Request) and Appendix #17 (Short Introduction to RCA), Radisys is stating “Compliant” and can support NSN’s RCA requirements.

The Radisys RCA process is compliant to the outlined requirements; providing full RCA reports for ACPI6-A product returns would have a ‘per unit charge’ associated with the level of analysis required to determine “why” a component failed. Determining “what” component failed in ACPI6-A would be covered by RMA repair.

# 3.8.16 Release Note Template

The same NSN eSW Release Note Template was used for the AB3 program and Radisys previously adopted this release note template for that program. Radisys will be compliant with this template for the AB6 ACPI6-A program as well.

# 3.8.17 LED Control Specification

After review of the LED Control Specification as noted in Appendix #41, any LED control deviations from this spec on our proposed A47000 Series Compute Blade will be addressed through IPMC FW (firmware) adjustments.

# 3.8.18 CPU Error Management

Radisys has reviewed the CPU Error Management requirements as defined in Appendix #42 and is in general compliance with the document with responses to specific error management requirements noted throughout our HPRS response (Section 3.7.2).

One particular item of note is the implementation of “Intel Advanced Off-line Diagnostics Tool” as noted in Section 4 of Appendix #42. Radisys has reviewed this tool with Intel including all currently available documentation (which is extremely limited at this time) and believes our CPM10 board meets all requirements necessary to support the Intel tool. However, until full disclosure with detailed documentation and full schedule information is available from Intel, Radisys has listed compliance to this requirement as “Compliant Later” and will work with both Intel and NSN to support if on ACPI6-A. Our expectations are that detailed documentation from Intel will crystalize in 2Q’14 at which time Radisys will be in a position to refine our compliance to this requirement.

# 3.8.19 Ethernet Interfaces IEEE802.3 Testing

After reviewing the requirements in this section for Ethernet IEEE802.3 interface testing, Radisys’ position is consistent with what was provided for AB5 IR4 ANPI1 program. Radisys tests compliance with out interface to the module, leaving the module vendor responsible for testing the external compliance. Understanding the fact that some additional compliance testing is needed when these modules are installed in our circuits, Radisys would be willing to provide such testing (as noted below) with the cost of such being negotiated between NSN and Radisys. For ANPI1-A, the cost was a one-time fee of $12K (USD).

SFP Module Type Testing for ACPI6-A to include measurements for Ethernet line interface characteristics versus the requirements of reference standards:

* Electrical interface parameters: Template, Voltage, Jitter, Return Loss, etc.
* Optical interface parameters: Jitter, Eye diagram, etc.
* Test coverage and report would be similar to the ETP unit SFP module type test report example provided to NSN for the AB5 program.

# 3.8.20 ATCA Blade eSW Upgrading

Upon reviewing the requirements for ATCA Blade eSW upgrading and comparing these with existing Radisys software design, development and testing processes, we have agreed to ensure the following will be adhered to for the AB6 ACPI6-A program:

* A maximum upgrade duration of 3 hours for the entire NE (including NE software as well as Radisys ACPI6 content)
* No dependencies on eSW/SW components so that only those that have changed can be updated and that multiple upgrade processes can be run simultaneously (i.e. maximize upgrade parallelism) in parallel;
* A maximum of 2 payload restarts during an upgrade;
* One activation command for all upgraded programmable;
* A Backup command required for all components to create a rollback image;
* Beginning with the AB6 program, all eSW versions will not be stored to the blade FRU data. Instead eSW version is to be read from stored image itself. Radisys will ensure we have tools to read the image version from the image itself. This functionality exists today for IPMC and BIOS and Radisys will make sure it does for other programmable and Linux images.

# 3.8.21 ATCA CPU Blade Security Requirements

<insert our compliance to this release note template here ….>

# 3.9 Software Source Code

Radisys is not concerned with providing source code access to software included with our proposed hardware as long as NSN has worked out arrangements with the 3rd party providers of this software for source code access. As a general rule, any Radisys-provided software code is open source with exceptions being Fulcrum, Broadcom, Wind River, AMI (BIOS), CMX (IPMC), EZChip, Texas Instruments, Cavium-based software or similar.

Radisys will license access to Radisys-developed components for internal use only. Other components would be distributed under GNU public licenses provided upon request.

Radisys will provide access to source code only for the purpose to allow NSN to include this into your SW environment. The agreement between NSN & Radisys allows NSN required changes be passed back to Radisys so we can include these into future SW releases while the IP continues to belong to Radisys.

It is important that Radisys will be called upon to provide service and maintenance support so both parties (Radisys & NSN) are looking at the same code base.

Refer to the Radisys Software License Master List (P/N 007-03398-0000) provided in zip file separate from this proposal for further details. This master list of software licenses is being updated to include our A47000 Series Compute Blade and an updated copy will be provided to NSN once completed at an agreed-to project milestone in this AB6 ACPI6-A program.

# 3.10 Open Source SW Due-Diligence

Consistent with similar requirements in AB3 IR3 for legal, patent, and trademark analysis on any open source software used in proposed ATCA products, Radisys is willing to (1) identify all software associated with AB6 ACPI6-A content awarded to us and (2) provide indemnification protection to NSN, holding you harmless against claims and infringements. Providing legal, patent and trademark analysis on each open source or freely available SW component can be extremely costly and time consuming depending on the number of software components involved. Radisys is willing to negotiate in good faith with NSN an approach that minimizes these costs yet meets the requirements of this section.

# 4 Service & Maintenance Requirements

# 4.1 HW Service Requirements

Radisys defers compliance to any HW service requirements associated with this section to a mutually agreeable SLA (service level agreement) or TSA (technical support agreement) for AB6.

# 4.2 Service Level Requirements for SW

Radisys’ worldwide Service & Support organization has reviewed the NSN-provided Service Level Agreement (SLA) from Section 3.6 and determined we are in compliance with all requirements stated there-in.

# 4.3 Serviceability Requirements – Design for Services

Please refer to file (AB5\_RFQ\_DFS\_RFI\_Eval\_Sheetv5.5-Final) in the RFP packet for a comprehensive response to this set of requirements.

# 5. PRODUCT LIFECYCLE REQUIREMENTS

# 5.1 Product Availability

Radisys will commit to the following product lifecycles from GA date associated with this AB6 Release 6.0 program subject to silicon availability:

* ACPI6-A 🡪 10 Years
* CPRT6-A 🡪 10 Years

Extensions to the above committed product lifecycles are negotiable. As always, product lifecycle commitment is based on key silicon availability for this duration. Radisys’ general practice is to select silicon that is “long life” rated.

# 5.2 Service Availability

Radisys recommends compliance to any service availability requirement be addressed through either a mutually agreed to Service Level Agreement (SLA) or under the current terms of Purchase Agreement #H970001.

# 6 NSN R&D SUPPORT REQUIREMENTS

After review of this latest version (4.0) dated October 29th 2013 of NSN R&D Support requirements and Radisys’ experience with (most recently) ANPI1-A program (October 2012) and earlier AB3 programs (AMPP1, etc.), Radisys fully understands the deliverables, expectations, commitments, resource requirements and internal investment required to sufficiently support such R&D activities.

Radisys has extensive experience at positioning COTS products customized to meet NSN-specific requirements for an ATCA asset used in an ATCA HW Platform comprising multi-vendor product content. We believe that experience will bring big dividends to NSN during key milestones of this ACPI6-A program.

# 6.1 Utilities for NSN Integration & Verification

Radisys’ System Integration (SIT) uses multiple utilities and infrastructure libraries to fully validate and Integrate the various building blocks into an “application ready” integrated platform. Many of these tools are Open Source Linux utilities while others comprise an extensive set of framework utilities that have been developed over many years through Radisys System Integration leadership.

Note this framework is understandably focused towards Integration testing within a native Radisys environment and therefore while this is an important part of the overall Radisys integration strategy, it is likely something of moderate interest to NSN in its current form. This is primarily due to our requirement for the presence of our Radisys Shelf Manager (or Radisys CMM Shelf Manager).

Radisys System Integration Tools and Utilities

* Commercially available tools
  + Polaris ATCA tester
  + SPEC CPU2006 (SPEC’s next-generation, industry-standardized CPU-intensive benchmark suite that stresses a system’s processor, memory subsystem & compiler
* Open source Linux tools/Free test tools
  + Intel PTU
  + Linpack
  + Netperf/lperf
  + Memtest86+
  + Ipmitool
  + Bonnie++
  + Stream

Radisys Enhanced Open Source / Internally Developed Linux Tools

* Rsys-ipmitool
* Radisys SIT Test Management System Qatraq
* Radisys HPIAPP

Radisys Update Tools

* rsys-ipmitool
* rsys-flashrom

User documentation on the above SIT utilities is limited at this time and would require additional work to be of use to NSN. None of these utilities are currently running under Wind River PNE Linux v 4.2.

A list of Radisys test software and upgrade tools that could be made available to NSN can be found in the zip file accompanying this proposal response (NSN Test SW & Upgrade Tools.6\_3\_RSYS-Resp-Final).

The table below has been updated to reflect the current Test & Upgrade Tools that would be applicable for ACPI6-A.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool Name** | **Internal/External** | **Functionality** | **Test Cycle** | **Available to NSN** |
| OpenIPMI | Open Source | IPMI | Developer Testing | Yes |
| HPI Tester | Polaris Networks | HPI Interface | Unit Test | License required |
| ATCA Tester | Polaris Networks | IPMI | UT/SIT | License required |
| ICTS Tester | PICMG | IPMC | Unit Test | Need to be a member of PICMG |
| BIOS POST | Internal | HW functional block verified in Uboot | Unit Test | Yes |
| Memtest86+ | Open Source | Memory test | SIT | Yes |
| Bonnie++ | Open Source | Storage performance and stress test | SIT | Yes |
| Linpack | Intel | CPU and memory stress test | SIT | Yes |
| iperf | sourceforge | Network test | SIT | Yes |
| netperf | netperf | Network test | SIT | Yes |
| PTU | Intel | Power consumption and CPU stress test | SIT | License required |

# 6.2 Interoperability and Acceptance Testing Support

Based on our understanding of the requirements, commitments (in resources, material, time & effort), and expectation of interoperability & acceptance testing within the NSN ATCA HW Platform environment consisting of multi-vendor products, Radisys feels we have an extreme level of understanding and confidence in meeting the deliverables of this section.

We point to the fact Radisys completed the Plugfest activities associated with the ANPI1-A program prior to its’ cancelation as justification for our confidence. Additionally, Radisys has much of the existing NSN ATCA HW Platform components used in the ANPI1-A program available for this ACPI6-A program.

Our review of the 57 test case scenarios (Appendix #25 – HW EIT & Plugfest Test Cases for ACPI6-A) indicate while we have many of these available today (from ANPI1 and other NSN programs), there will be some (test cases) requiring SW development. This development has been captured in our cost of doing business as noted in Section 3.1.4 (Other Costs).

Radisys Engineering has reviewed Appendix 26 (ACPI6-A Supplier Testing for RIS Milestone) factoring the NSN expectations into proposed date commitments entered into the Suppliers Deliverables List (Appendix #27). Radisys has a reasonable confidence in meeting the ACPI6-A project milestones assuming program award is made in April (2014) as noted in Sec 2.11 of RFQ.

Radisys Engineering has also reviewed the information and requirements noted in the NSN-supplied document entitled ATCA & BCN HW Platform Testing – Supplier View and have determined we can comply with and meet the expectations noted in this document.

Lastly, Radisys understands the expectation that all test cases noted in Appendix #25 are to be successfully completed on our proposed A47000 Series Compute Blade at our facility prior to the start of Plugfest activities at the NSN location.

# 6.3 Documentation Requirements

The following supportive documents, required as attachments to the AB6 Release 6.0 RFQ, are being provided to NSN as noted below:

* A47000 Series Compute Blade HW Specification/Description
  + Please refer to file in zip file of support documents called CPM10 Product Hardware Specification R1.0\_0210 for the hardware specifications of our proposed A47000 Series Compute Blade.
* A47000 Series Compute Blade SW Specification/Description
  + Please refer to zip file of support documents for files called CPM10 BIOS Spec r1.00, CPM10\_IPMI\_Specification\_R0.5, and CPM10\_Linux\_SW\_Spec-D0.8.20131227 for software specs of our A47000 Series Compute Blade.
* Product Licenses under which A47000 Series Compute Blade will be delivered
  + Compliant Later 🡪 the list of commercial and open source licenses associated with Radisys products is maintained in our ATCA Software License Master List (January 2014). A copy of this list is being provided with this proposal and can be found in the external zip file. This master list has to be updated to include the A47000 Series Compute Blade. The timeline for having this master list updated is June 2014.
* Thermal Specifications (temperature limits, power consumption, cooling requirements)
  + Compliant Later 🡪 Power consumption and temperature range for the Radisys A47000 Series Compute Blade:
    - Estimated Max Power 🡪 255 Watts (aligns with AST822 in HPRS)
    - Estimated Typical Power 🡪 ??? Watts (TBD)
    - Maximum Possible Operating Power Range 🡪 220 Watts to ??? Watts (range from max in AST823 (HPRS) to our actual worst case)
    - Operating Temperature 🡪 Normal:+5°C to +45°C, Short Term: -5°C to +55°C
    - Storage Temperature 🡪 -40°C to +70°C
    - Operating Relative Humidity 🡪 5 to 85%
  + Note: while the Radisys A47000 Series Compute Blade can go much higher in power consumption, FW will be used to limit it.
* Compliance Matrix to NSN Requirement Specifications (RS)
  + ACPI6-A HPRS Compliance Matrix 🡪 Radisys’ response can be found in external zip file;
* Description of Supplier’s Verification Process
  + Reference the PowerPoint presentation entitled Radisys Engineering Practices NSN RFQ 21Feb2014 for description of our Verification Process. These same processes and practices were used by Radisys for the AB5 ANPI1-A program from Q4 2012.
* List of Certificates delivered by Supplier
* A47000 Series Compute Blade
  + - Safety 🡪 UL/EN/IEC 60950-1, CSA 22.2
    - EMC 🡪 FCC Part 15, Class B, EN 55022: 1998, Class B; EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8
* Radisys’ A47000 Series Compute Blade Project Schedule
  + < enter project schedule for CPM10 to include rev 0 and rev 1 EAU units, prototypes, pre-production units, and RM (release to manufacturing) ……
* Plan for Phasing SW Deliveries 🡪 Radisys recommends a joint mutual agreement and structure for meeting this deliverable.

The Radisys Shenzhen Engineering Team currently responsible for our A47000 Series Compute Blade has reviewed Appendix #27 – Supplier Deliverable List for ACPI6-A paying particular attention to NSN’s proposed Target Dates to the Deliverable IDs listed in the “Deliverables, Schedule” tab of this spreadsheet. This compliance covers the first deliverable ID (P3.1 – Project Plan) through to the last (SPC.12 – Ramp up Plan for Volume Production). Per request, Radisys has entered our proposed date commitments associated with NSN’s expectations. Our response to Appendix #27 (NSN 27 Supplier Deliverables List for ACPI6-A v1 0 RSYS-Resp-021914) can be found in the zip file of support documents. Radisys’ proposed ACPI6-A schedule ‘snapshot’ can be found in the same zip file of support documents showing our alignment to NSN project schedule milestones.

# 7 OTHER REQUIREMENTS

# 7.1 Logistics Requirements

After reviewing the requirements from this section with emphasis on the Contract Warehousing (CW) model, Radisys has determined we can be “compliant” with what is being requested of suppliers.

Our statement of compliance assumes the supply chain and commercial relationships for this program will be consistent with Radisys strategic manufacturing direction; NSN will purchase product directly from Radisys and Ennoconn (Radisys’ CM) provides the manufacturing services to Radisys from their Shenzhen facility.

Radisys will commit to deliver volume product within a targeted lead time of 2-4 weeks provided this is contained within NSN’s forecast and that this forecast is within Radisys’ lead time.

With regards to the Contracting Warehousing (CW) requirement, Radisys can provide such services within our FGI/3PL model.

With respect to the reporting requirements specified in this section, Ennoconn, as Radisys’ CM, would provide the data as required and Radisys would provide the reports to NSN. Further understanding and clarification of these reports will be required prior to report development so expectations can be met for NSN and Radisys.

Radisys recommends all requirements of this section be incorporated into either a mutually agreeable TSA or SLA agreement.

# 7.2 Workmanship Standards

Radisys has reviewed the reference documents in this section related to electronic assemblies, cable & wire harnesses, and press-in connections and have concluded we are in compliance with these standards.

# 7.3 Development Schedule

Product Development/Availability

The table below summarizes availability and lead-time of ACPI6-A & CPRT6-A:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **AB6 Release 6.0** | **AB6 Asset Description** | **Prototype EAU  Availability** | **GA**  **(RM)**  **Availability** | **Lead time (weeks ARO)** |
| **ACPI6-A Compute Blade** | **Dual Haswell ATCA Compute Blade** | **???** | **Production Released ????** | **Production – 8-12 weeks ARO without forecast ?????** |
| **CPRT6-A RTM** | **RTM for ACPI6-A** | **????** | **?????** | **Production – 8-12 weeks ARO without forecast ????** |

Development & Manufacturing Sites

* + A47000 Series Compute Blade Design & Development (HW & SW):
    - HW and SW design and development will be managed by Radisys;
  + A47000 Series Compute Blade Manufacturing
    - Prototype Manufacturing, EAU units, and released to manufacturing product will be provided by Radisys’ CM partner, Ennoconn, out of their Shenzhen China location.

# 7.4 Export Control Customs Compliance Management

Our response to Export Control Customs Component List Template (ECC Component List Template OEM ODM Appendix #30 can be found in the externally provided “zip file” accompanying this RFQ proposal response.

# 7.5 Test Units

The following is a summary of product availability and maturity status for Radisys-proposed assets to the AB6 Release 6.0 program supporting NSN integration activities:

* Prototype Units during Development Phase, Units for HW Approvals (mature HW revision), HW Verification & Early Access for SW Platforms & Applications
  + Quantities Needed 🡪 10 – 50 units
  + State Lead Time (from order to shipment of units) – 2 weeks expectation
    - ACPI6-A 🡪 4-8 weeks with committed forecast
    - CPRT6-A 🡪 4-8 weeks with committed forecast
* HW Approved Units, Units for HW Platform Verification & SW Platform/Application Testing
  + Quantities Needed 🡪 100 – 400 units
  + State Lead time (from order to shipment of units) – 4 weeks expectation
    - ACPI6-A 🡪 4-8 weeks with committed forecast
    - CPRT6-A 🡪 4-8 weeks with committed forecast

Note: Test units of ACPI6-A and CPRT6-A will not include any NSN-specific SW (General FRU Startup, SW Delivery Format, HW Platform FRU Information Spec, HPI Support, Diagnostics, FUMI) that is being “Compliant Later” with a June 2013 timeframe commitment.

# 7.6 Customer Documentation

Radisys is positioning our A47000 Series Compute Blade for the AB6 ACPI6-A program.

The A47000 Series Compute Blade is currently in early development and an EAU (early access unit) is being evaluated in the NSN lab. Once the A47000 Series Compute Blade has been released to manufacturing (RM), all available technical publications associated with this ATCA blade will be posted on our website for customer download ([WWW.radisys.com/downloads](http://WWW.radisys.com/downloads)).

Technical publications associated with the A47000 Series Compute Blade will consist of the following:

|  |  |  |
| --- | --- | --- |
| **Radisys Standard Product** | **NSN Equivalent** | **Manual Name** |
| A47000 Series Compute Blade | ACPI6-A | CPM Installation Guide |
| ATCA-47xxx CPM Reference |
| ATCA-47xxx CPM BIOS Specification |
| ATCA-47xxx CPM Managed Sensors |
| Rear Transition Module (RTM) Installation Guide |
| ATCA-47xxx RTM Reference |
| ATCA-47xxx RTM Managed Sensors |
| ATCA-47xxx Release Notes |
| Custom Software features supplement for NSN |
| ATCA Command Line Interface Reference |
| ATCA Software Guide |
| ATCA Firmware and Software Update Reference |
| Shelf Management Software Reference |
| ATCA Software License Master List |
|  |

The product documentation above (when available) will be product branded with Radisys logo and product names.

# 7.7 Training

Radisys is willing to provide NSN with a training day for employees at NSN Karaportti site in Espoo, Finland with emphasis on hardware installation and embedded software including interfaces. The date of the training, the number of employees to be included in this training day and the training agenda would be mutually agreed to as part of program award.

Radisys is willing to work with NSN to provide such training at minimal out-of-pocket expense to either party.

# 7.8 Compatibility, Testing, & Validation

As noted in Section 6.2 (Interoperability & NSN Integration and Verification Testing Support), Radisys’ most recent experience with plugfest (PICMG Interoperability Workshop) activities was with ANPI1-A program from Q4’2012 and on.

We understand the IOT scope and effort of incorporating our own ATCA building blocks with other 3rd party ATCA building blocks into the NSN ATCA HW Platform configurations. We have the experience that can be leveraged into this activity and some existing investments from ANPI1-A program that can be capitalized on.

If chosen for this program, Radisys would maintain a duplicate NSN configuration in our presence for such activity and to be able to replicate and resolve HW and/or SW issues arising from our proposed ACPI6-A solution.

Through a number of NSN programs over the years (AB.x and others), Radisys’ software capabilities have matured and expanded to the point NSN should have confidence in our capabilities to deliver to expectations.

In summary, Radisys is confident in being (fully) ‘Compliant’ to the requirements & deliverables associated with this section of the RFQ.

# Summary

Radisys is confident in our ability to meet all NSN expectations for ACPI6-A and CPRT6-A from a technical, HW/SW engineering R&D development, blade integration & validation, and quality perspective.

The Radisys proposed A47000 Series Compute Blade complies with over 99.9% of the NSN HPRS requirements specs for ACPI6-A & CPRT6-A.

We believe our pricing, technical alignment and strong experience in other NSN AB.x programs makes Radisys a strong candidate for being an ideal NSN partner for this program.

During the period NSN is evaluating the supplier proposals, if there are any questions or concerns, please contact the designated Radisys Technical and/or Commercial contacts noted in Section 2.9 of this proposal.

In the meantime, we are preparing for an anticipated F2F meeting whereby we can present our product solution to your AB6 ACPI6-A requirements including all operational, technical, service & support, and IOT integration validation services associated with this proposal response.

Any initial observations you want to share are greatly appreciated.

I will contact you within the next week to see where you are in your evaluation of proposal responses.

Regards,

Michael Lokenberg

NSN Global Account Manager

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Keate Despain (Radisys)

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