



## DEFENSE INFORMATION SYSTEMS AGENCY

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IN REPLY  
REFER TO: Joint Interoperability Test Command (JTE)

**18 Feb 11**

### MEMORANDUM FOR DISTRIBUTION

**SUBJECT:** Extension of the Special Interoperability Test Certification of the Juniper Circuit to Packet (CTP) 1004, 2024, and 2056 with software release 5.4 R2-P1

**References:** (a) DOD Directive 4630.05, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," 5 May 2004  
(b) CJCSI 6212.01E, "Interoperability and Supportability of Information Technology and National Security Systems," 15 December 2008  
(c) through (f), see Enclosure 1

1. References (a) and (b) establish the Defense Information Systems Agency (DISA), Joint Interoperability Test Command (JITC), as the responsible organization for interoperability test certification.

2. The Juniper CTP 1004, 2024, and 2056 with software release 5.4 R2-P1 are hereinafter referred to as the SUT. The SUT meets all of its critical interoperability requirements and is certified as interoperable for joint use within the Defense Switched Network (DSN) as a Strategic Network Element. The SUT is deployed as a mated pair, and both SUTs must be loaded with the same certified 5.4 R2-P1 software release in order to interoperate correctly. The SUT has three certified types of encapsulation which are Circuit to Packet (CTP), Structured-Agnostic Time Division Multiplexing (TDM) over Internet Protocol (IP) (SAToP), and Circuit Emulation Services over a Packet Switched Network (CESoPSN). There is a fourth encapsulation called Voice Compression (VCOMP); however, this encapsulation type failed initial interoperability testing and is therefore not certified by JITC. The SUT meets the critical interoperability requirements set forth in Reference (c), using test procedures derived from Reference (d). No other configurations, features, or functions, except those cited within this report, are certified by the JITC. This certification expires upon changes that affect interoperability, but no later than three years from the date of Defense Information Assurance (IA)/Security Accreditation Working Group (DSAWG) accreditation.

3. The extension of this certification is based upon Desktop Review (DTR) 1. The original certification is based on interoperability testing, review of the vendor's Letters of Compliance (LoC), and DSAWG accreditation. Interoperability testing was conducted by JITC at the Global Information Grid Network Test Facility (GNTF), Fort Huachuca, Arizona, from 28 September through 30 October 2009 and documented in Reference (e). Review of the vendor's LoC was completed on 23 February 2010. The DSAWG granted accreditation on 14 June 2010 based on the security testing completed by DISA-led IA test teams and published in a separate report,

Reference (f). This DTR was requested to certify software release 5.4 R2-P6 on the Juniper CTP 2056 only. JITC analyzed this software release and determined that 5.4 R2-P6 provided the same functionality as software release 5.4 R2-P1 with the added capability of VCOMP on the CTP 2056. The VCOMP capability allows the CTP 2056 with software release 5.4 R2-P6 to meet the Tactical Network Element requirements in UCR 2008, section 6.1.4. The VCOMP capability was evaluated based on data collected during testing performed from 30 August through 19 September 2010. The VCOMP capability consists of International Telecommunication Union - Telecommunication Standardization Sector (ITU-T) G.711 and ITU-T G.726 (32k) voice compression codecs and was validated for use with the T1 ISDN PRI and Ear and Mouth (E&M) interfaces. The CTP 2056 is deployed as a mated pair, and both CTP 2056s must be loaded with the same certified 5.4 R2-P6 software release in order to interoperate correctly. The JITC determined there was minor risk in approving this DTR based on analysis and testing data of the CTP 2056 with software release 5.4 R2-P6. Therefore, JITC approves this DTR. DISA Network Systems Directorate has approved the Information Assurance posture of SUT in this DTR on 4 February 2011.

4. The overall interoperability status of the SUT is indicated in Table 1. The interfaces and associated Capability Requirements (CRs) and Feature Requirements (FRs) critical used to evaluate the interoperability status are listed in Table 2. The interoperability test status is based on the SUT's ability to meet:

- a. DSN services for Network and Applications specified in reference (c).
- b. The overall system interoperability performance derived from test procedures listed in reference (d).

**Table 1. SUT Interoperability Test Summary**

<b>DSN Access Interfaces</b>			
<b>Interface &amp; Signaling</b>	<b>Critical</b>	<b>Status</b>	<b>Remarks</b>
T1 CAS (AM/SF) DTMF, MFR1	No <sup>1</sup>	Certified	Met all CRs and FRs.
T1 CAS (B8ZS/ESF) DTMF, MFR1	No <sup>1</sup>	Certified	Met all CRs and FRs.
T1 PRI (ANSI T1.607/T1.619a)	No <sup>1</sup>	Certified	Met all CRs and FRs. (See note 2.)
T1 SS7 (ANSI T1.619a)	No <sup>1</sup>	Certified	Met all CRs and FRs.
E1 CAS (HDB3) DTMF, MFR1, DP	No <sup>1</sup> (Europe only)	Certified	Met all CRs and FRs.
E1 ISDN PRI (ITU-T Q.955.3)	No <sup>1</sup> (Europe only)	Certified	Met all CRs and FRs.
E1 SS7 (ANSI T1.619a)	No <sup>1</sup> (Europe only)	Certified	Met all CRs and FRs.
Serial (EIA-232, EIA-530)	No <sup>1</sup>	Certified	Met all CRs and FRs.
Analog E&M Type 1 <sup>3</sup>	No <sup>1</sup>	Certified	Met all CRs and FRs. (See note 2.)
<b>DSN Transport Interfaces</b>			
<b>Transport Level</b>	<b>Critical</b>	<b>Status</b>	<b>Remarks</b>
Fast Ethernet (IEEE 802.3u)	No <sup>4</sup>	Certified	Met all CRs and FRs.
<b>Features And Capabilities</b>			
<b>Features And Capabilities</b>	<b>Critical</b>	<b>Status</b>	<b>Remarks</b>
Synchronization	Yes	Certified	Met all CRs and FRs.
Network Management	Yes	Certified	Met all CRs and FRs.
Security	Yes	Certified	See note 5.

**Table 1. SUT Interoperability Test Summary (continued)**

<b>NOTES:</b>			
1	The UCR does not stipulate a minimum Access interface requirement for a Strategic Network Element.		
2	This DTR includes VCOMP encapsulation for this interface on the Juniper CTP 2056.		
3	This interface was not included in the original certification and is only supported with the CTP 2056 with software release 5.4 R2-P6. The SUT is capable of Analog E&M type 1, 2, 3, and type 5 interfaces. Type 1 was the interface tested; however, JITC determined that type 2, 3, and 5 were similar for interoperability certification purposes. JITC finds little risk in certifying these analog E&M interfaces along with type 1.		
4	The UCR does not stipulate a minimum Transport interface requirement for a Strategic Network Element.		
5	Information assurance testing is accomplished via DISA-led Information Assurance test teams and published in a separate report, Reference (f).		
<b>LEGEND:</b>			
802.3u	Standard for carrier sense multiple access with collision detection at 100 Mbps	EIA-530	Standard for 25-position interface for DTE and DCE employing serial binary data interchange
AMI	Alternate Mark Inversion	IEEE	Institute of Electrical and Electronics Engineers
ANSI	American National Standards Institute	ISDN	Integrated Services Digital Network
B8ZS	Bipolar Eight Zero Substitution	ITU-T	International Telecommunication Union – Telecommunication Standardization Sector
CAS	Channel Associated Signaling	Mbps	Megabits per second
CRs	Capability Requirements	MFR1	Multi-Frequency Recommendation 1
DCE	Data Circuit-terminating Equipment	MLPP	Multi-Level Precedence and Preemption
DISA	Defense Information Systems Agency	PRI	Primary Rate Interface
DP	Dial Pulse	Q.955.3	ISDN Signaling Standard for E1 MLPP
DSN	Defense Switched Network	SF	Super Frame
DSS1	Digital Subscriber Signaling 1	SS7	Signaling System 7
DTE	Data Terminal Equipment	SUT	System Under Test
DTMF	Dual Tone Multi-Frequency	T1	Digital Transmission Link Level 1 (1.544 Mbps)
E&M	Ear and Mouth	T1.607	ISDN – Layer 3 Signaling Specification for Circuit Switched Bearer Service for DSS1
E1	European Basic Multiplex Rate (2.048 Mbps)	T1.619a	SS7 and ISDN MLPP Signaling Standard for T1
ESF	Extended Super Frame	UCR	Unified Capabilities Requirements
FRs	Feature Requirements	VCOMP	Voice Compression
HDB3	High Density Bipolar 3		
EIA	Electronic Industries Alliance		
EIA-232	Standard for defining the mechanical and electrical characteristics for connecting DTE and DCE data communications devices		

**Table 2. SUT Capability and Feature Interoperability Requirements**

DSN Access Interfaces			
Interface	Critical	Requirements Required or Conditional	References
T1 CAS (AMI/SF) DTMF, MFR1	No <sup>1</sup>	<ul style="list-style-type: none"> <li>• DS1 Interface Characteristics (C)</li> <li>• DS1 Supervisory Channel Associated Signaling (C)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR Section 5.2.12.5.5.1.2.4</li> <li>• UCR Section 5.2.12.5.5.1.2.4</li> </ul>
T1 CAS (B8ZS/ESF) DTMF, MFR1	No <sup>1</sup>	<ul style="list-style-type: none"> <li>• DS1 Clear Channel Capability (C)</li> <li>• DS1 Alarm and Restoral Requirements (C)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR Section 5.2.12.5.5.1.2.4</li> <li>• UCR Section 5.2.12.5.5.1.2.4</li> </ul>
T1 PRI (ANSI T1.607/T1.619a)	No <sup>1</sup>	<ul style="list-style-type: none"> <li>• E1 Interface Characteristics (C)</li> <li>• E1 Supervisory Channel Associated Signaling (C)</li> <li>• E1 Clear Channel Capability (C)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR Section 5.2.12.5.5.1.2.5</li> <li>• UCR Section 5.2.12.5.5.1.2.5</li> <li>• UCR Section 5.2.12.5.5.1.2.5</li> </ul>
T1 SS7 (ANSI T1.619a)	No <sup>1</sup>	<ul style="list-style-type: none"> <li>• E1 Alarm and Restoral Requirements (C)</li> <li>• MOS (R)</li> <li>• BERT (R)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR Section 5.2.12.5.5.1.2.5</li> <li>• UCR Section 5.2.12.5.5.1.1</li> <li>• UCR Section 5.2.12.5.5.1.1</li> </ul>
E1 CAS (HDB3) DTMF, MFR1, DP	No <sup>1</sup>	<ul style="list-style-type: none"> <li>• Secure Transmission (Voice and Data) (R)</li> <li>• Modem (R)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR Section 5.2.12.5.5.1.1</li> <li>• UCR Section 5.2.12.5.5.1.1</li> </ul>
E1 ISDN PRI (ITU-T Q.955.3)	No <sup>1</sup>	<ul style="list-style-type: none"> <li>• Facsimile (R)</li> <li>• Call Control Signals (R)</li> <li>• Alarms (R)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR Section 5.2.12.5.5.1.1</li> <li>• UCR Section 5.2.12.5.5.1.1</li> <li>• UCR Section 5.2.12.5.5.1.1.1</li> </ul>
E1 SS7 (ANSI T1.619a)	No <sup>1</sup>	<ul style="list-style-type: none"> <li>• Call Congestion Control (R)</li> <li>• Call Congestion for TDM Transport (C)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR Section 5.2.12.5.5.1.1.2</li> <li>• UCR Section 5.2.12.5.5.1.1.2.1</li> </ul>
Serial (EIA-232, EIA- 530)	No <sup>1</sup>	<ul style="list-style-type: none"> <li>• Voice Compression (C)</li> <li>• TIA/EIA-232, TIA-EIA-530 (R)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR Section 5.2.12.5.5.1.1.3</li> <li>• UCR Section 5.2.8.1</li> </ul>

**Table 2. SUT Capability and Feature Interoperability Requirements (continued)**

<b>DSN Transport Interfaces</b>			
<b>Interface</b>	<b>Critical</b>	<b>Requirements Required or Conditional</b>	<b>References</b>
IP	No <sup>2</sup>	<ul style="list-style-type: none"> <li>• DS1 Interface Characteristics (R)</li> <li>• E1 Interface Characteristics (R)</li> <li>• MOS (R)</li> <li>• BERT (R)</li> <li>• Secure Transmission (Voice and Data) (R)</li> <li>• Modem (R)</li> <li>• Facsimile (R)</li> <li>• Call Control Signals (includes MLPP) (R)</li> <li>• Congestion Control (C) (IP interface only)</li> <li>• Voice Compression (C)</li> <li>• Alarms</li> <li>• Delay (R)</li> <li>• Jitter (R)</li> <li>• Packet Loss (R)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR Section 5.2.12.5.5.1.2.4</li> <li>• UCR Section 5.2.12.5.5.1.2.5</li> <li>• UCR Section 5.2.12.5.5.1.1</li> <li>• UCR Section 5.2.12.5.5.1.1.2.2</li> <li>• UCR Section 5.2.12.5.5.1.1.3</li> <li>• UCR Section 5.2.12.5.5.1.1.1</li> <li>• UCR Section 5.2.12.5.5.1.2.9</li> <li>• UCR Section 5.2.12.5.5.1.2.9</li> <li>• UCR Section 5.2.12.5.5.1.2.9</li> </ul>
<b>SUT Features And Capabilities</b>			
<b>Feature/Capability</b>	<b>Critical</b>	<b>Requirements Required or Conditional</b>	<b>References</b>
Synchronization	Yes	<ul style="list-style-type: none"> <li>• Timing (R)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR Section 5.2.12.5.5.1.2.7</li> </ul>
Network Management	Yes	<ul style="list-style-type: none"> <li>• Management Option (R)</li> <li>Local Management (Front Panel and/or External Console) (C)</li> <li>ADIMSS (C)</li> <li>• Fault Management (C)</li> <li>• Loop Back Capability (C)</li> <li>• Operational Configuration Restoral (R)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR Section 5.2.12.5.5.2.1</li> <li>• UCR Section 5.2.12.5.5.2.2</li> <li>• UCR Section 5.2.12.5.5.2.3</li> <li>• UCR Section 5.2.12.5.5.2.4</li> </ul>
Security	Yes	<ul style="list-style-type: none"> <li>• STIGs and DoDI 8510.01 (DIACAP) (R)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR Section 5.2.12.5.5.7</li> </ul>
<b>NOTES:</b>			
1 The UCR does not stipulate a minimum required DSN access interface.			
2 The UCR does not stipulate a minimum required DSN transport interface.			
<b>LEGEND:</b>			
ADIMSS	Advanced DSN Integrated Management Support System	ESF	Extended Super Frame
AMI	Alternate Mark Inversion	HDB3	High Density Bipolar Three
ANSI	American National Standards Institute	IP	Internet Protocol
B8ZS	Bipolar Eight Zero Substitution	ISDN	Integrated Services Digital Network
BERT	Bit Error Rate Test	ITU-T	International Telecommunication Union – Telecommunication Standardization Sector
C	Conditional	Mbps	Megabits per second
CAS	Channel Associated Signaling	MFR1	Multi-Frequency Recommendation 1
DCE	Data Circuit-terminating Equipment	MLPP	Multi-Level Precedence and Preemption
DIACAP	Department of Defense Information Assurance Certification and Accreditation Process	MOS	Mean Opinion Score
DoDI	Department of Defense Instruction	PRI	Primary Rate Interface
DP	Dial Pulse	Q.955.3	ISDN Signaling Standard for E1 MLPP
DS1	Digital Signal Level 1	R	Required
DSN	Defense Switched Network	SF	Super Frame
DSS1	Digital Subscriber Signaling 1	SS7	Signaling System 7
DTE	Data Terminal Equipment	STIGs	Security Technical Implementation Guides
DTMF	Dual Tone Multi-Frequency	SUT	System Under Test
E1	European Basic Multiplex Rate (2.048 Mbps)	T1	Digital Transmission Link Level 1 (1.544 Mbps)
EIA	Electronic Industries Alliance	T1.607	ISDN – Layer 3 Signaling Specification for Circuit Switched Bearer Service for DSS1
EIA-232	Standard for defining the mechanical and electrical characteristics for connecting DTE and DCE data communications devices	T1.619a	SS7 and ISDN MLPP Signaling Standard for T1
EIA-530	Standard for 25-position interface for DTE and DCE employing serial binary data interchange	TDM	Time Division Multiplexing
		UCR	Unified Capabilities Requirements

JITC, Memo, JTE, Extension of the Special Interoperability Test Certification of Juniper CTP 1004, 2024, and 2056 with software release 5.4 R2-P1

5. No detailed test report was developed in accordance with the Program Manager's request. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses Unclassified-But-Sensitive Internet Protocol Router Network (NIPRNet) e-mail. More comprehensive interoperability status information is available via the JITC System Tracking Program (STP). The STP is accessible by .mil/gov users on the NIPRNet at <https://stp.fhu.disa.mil>. Test reports, lessons learned, and related testing documents and references are on the JITC Joint Interoperability Tool (JIT) at <http://jit.fhu.disa.mil> (NIPRNet), or <http://199.208.204.226> (SIPRNet). Information related to DSN testing is on the Telecom Switched Services Interoperability (TSSI) website at <http://jitc.fhu.disa.mil/tssi>. Due to the sensitivity of the information, the Information Assurance Accreditation Package (IAAP) that contains the approved configuration and deployment guide must be requested directly through government civilian or uniformed military personnel from the Unified Capabilities Certification Office (UCCO), e-mail: [ucco@disa.mil](mailto:ucco@disa.mil).

6. The JITC point of contact is Mr. Khoa Hoang, DSN 879-4376, commercial (520) 538-4376, FAX DSN 879-4347, or e-mail to [khoa.hoang@disa.mil](mailto:khoa.hoang@disa.mil). The JITC's mailing address is P.O. Box 12798, Fort Huachuca, AZ 85670-2798. The tracking number for the SUT is 0910501.

FOR THE COMMANDER:

Enclosure a/s

  
for BRADLEY A. CLARK  
Acting Chief  
Battlespace Communications Portfolio

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Division, J68

Defense Information Systems Agency, GS23

## ADDITIONAL REFERENCES

- (c) Defense Information Systems Agency (DISA), "Department of Defense Networks Unified Capabilities Requirements," 22 January 2009
- (d) Joint Interoperability Test Command, "Defense Switched Network Generic Switch Test Plan (GSTP), Change 2," 2 October 2006
- (e) JITC Memo, JTE, "Special Interoperability Test Certification of the Juniper Circuit to Packet (CTP) 1004, 2024, and 2056 with software release 5.4 R2-P1," 23 March 2009
- (f) Joint Interoperability Test Command, "Information Assurance (IA) Assessment of Juniper CTP 1004, 2024, and 2056 with software release 5.4 R2-P1 (Tracking Number 0910501)," 14 June 2010