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U.S. Department of Commerce
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PATENT

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Reel #

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Conveyance Type

☐ Assignment

☐ Security Agreement

☐ License

☐ Change of Name

☐ Merger

☒ Other Release and Termination of Security

U.S. Government

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☐ Departmental File

☐ Secret File

Conveying Party(ies)

☐ Mark if additional names of conveying parties attached

Name (line 1) Silicon Valley Bank

Execution Date
Month Day Year

Oct. 12, 2001

Name (line 2)

Execution Date
Month Day Year

Second Party

Name (line 1)

Name (line 2)

Receiving Party

☐ Mark if additional names of receiving parties attached

Name (line 1) RiverDelta Networks, Inc.

Name (line 2)

Address (line 1) 3 Highwood Drive East

Address (line 2)

Address (line 3) Tewksbury

City

Massachusetts

State/Country

01876

Zip Code

☐ If document to be recorded is an assignment and the receiving party is not domiciled in the United States, an appointment of a domestic representative is attached. (Designation must be a separate document from Assignment.)

Domestic Representative Name and Address

Enter for the first Receiving Party only.

Name

Address (line 1)

Address (line 2)

Address (line 3)

Address (line 4)

01/03/2002 DBYRNE 00000033 09804857

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Commissioner of Patents and Trademarks, Box Assignments, Washington, D.C. 20231

PATENT
REEL: 012408 FRAME: 0275

Correspondent Name and Address

Area Code and Telephone Number

212-848-4406

Name Alexander M. Kim

Address (line 1) SHEARMAN & STERLING

Address (line 2) 599 Lexington Avenue

Address (line 3) New York, NY 10022

Address (line 4)

Pages

Enter the total number of pages of the attached conveyance document
including any attachments.

48

Application Number(s) or Patent Number(s)

☐ Mark if additional numbers attached

Enter either the Patent Application Number or the Patent Number (DO NOT ENTER BOTH numbers for the same property).

Patent Application Number(s)

09/804,857

09/836,761

09/844,216

09/845,541

Patent Number(s)

If this document is being filed together with a new Patent Application, enter the date the patent
application was signed by the first named executing inventor.

Month Day Year

Patent Cooperation Treaty (PCT)

Enter PCT application number
only if a U.S. Application Number
has not been assigned.

PCT

PCT

PCT

PCT

PCT

PCT

Number of Properties

Enter the total number of properties involved.

4

Fee Amount

Fee Amount for Properties Listed (37 CFR 3.41):

\$ 160.00

Method of Payment:

Enclosed ☒Deposit Account ☐

Deposit Account

(Enter for payment by deposit account or if additional fees can be charged to the account.)

Deposit Account Number:

50-0324

Authorization to charge additional fees:

Yes ☒No ☐

Statement and Signature

To the best of my knowledge and belief, the foregoing information is true and correct and any
attached copy is a true copy of the original document. Charges to deposit account are authorized, as
indicated herein.

Alexander M. Kim

Name of Person Signing

Signature

Date

**TERMINATION AND RELEASE OF INTELLECTUAL
PROPERTY SECURITY AGREEMENT**

Reference is made herein to a certain Intellectual Property Security Agreement (the "Security Agreement") granted as of the 11th day of July, 2001, by RiverDelta Networks, Inc. ("RiverDelta") to Silicon Valley Bank (the "Bank").

This **RELEASE AND TERMINATION OF SECURITY AGREEMENT**, dated as of October 15, 2001, is effective as of the closing of the merger transaction between **RIVERDELTA** and **Motorola, Inc.**

WITNESSETH:

WHEREAS, the Security Agreement was executed and delivered to the Bank to secure certain obligations of RiverDelta to the Bank pursuant to that certain Loan and Security Agreement, dated as of June 30, 2000, as amended from time to time (the "Credit Agreement"); and

WHEREAS, RiverDelta, has paid and/or performed all of the obligations to the Bank under the Credit Agreement;

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Bank hereby agrees with RiverDelta, as follows:

1. Release of Security Interest. The Bank hereby terminates, discharges and releases its security interest in the Intellectual Property Collateral including the intellectual property listed on Exhibit A attached hereto (the "Intellectual Property") and grants, assigns and conveys to RiverDelta, all of its respective rights, title and interest in and to the Intellectual Property as such term is defined in the Security Agreement. All rights of any nature whatsoever granted by RiverDelta, to the Bank pursuant to the Security Agreement are hereby reassigned, reconveyed and released to RiverDelta, and the Security Agreement is hereby terminated and shall be null and void and of no further force or effect whatsoever.

2. Further Assurances. The Bank shall promptly execute and deliver to RiverDelta, upon request from time to time, all documents, instruments and certificates, in form suitable for recording at the United States Patent and Trademark Office or other appropriate governmental office, and take such further action as RiverDelta, reasonably requests of Bank to effectuate and perfect the release contemplated hereunder.

3. Waivers, Assignments, Choice of Law, etc.

(a) No delay or omission on the part of RiverDelta, in exercising any right hereunder shall operate as a waiver of such right or of any other right hereunder.

(b) This Agreement shall inure to the benefit of and be binding upon RiverDelta and the Bank and all of their respective successors and assigns.

(c) This Agreement shall be governed by the laws of the Commonwealth of Massachusetts and shall take effect as an instrument under seal.

IN WITNESS WHEREOF, the Bank has executed this Agreement as a sealed instrument as of the date first written above.

SILICON VALLEY BANK:

By: *Doug Marshall*
Name: *Douglas Marshall*
Title: *Vice President*

TRA 1576566v1

Subscribed and sworn before
me on October 12, 2001.

Jane M. Flynn

JANE M. FLYNN
NOTARY PUBLIC
My commission expires May 15, 2003

**PATENTS, TRADEMARKS AND
TRADE NAMES, COPYRIGHTS AND LICENSES**

United States Patent Applications

Title	Inventor(s)	Filing Date/ Serial No.	Owner	Related Cases
<i>Data Rate Limiting</i>	Zhao Liu Jerry Zhiyi Guo	March 13, 2001 09/804,857	RiverDelta Networks, Inc.	Utility Conversion of Serial No. 60/189,640, filed March 14, 2001
<i>Radio Frequency Communications Redundancy</i>	Gerard White Patrick A. Gerber	April 18, 2001 09/836,761	RiverDelta Networks, Inc.	Utility Conversion of Serial No. 60/198,294, filed April 19, 2000
<i>Data Packet Discarding</i>	Jon C.R. Bennett	April 30, 2001 09/844,216	RiverDelta Networks, Inc.	Utility Conversion of Serial No. 60/201,010, filed May 1, 2000
<i>Packetized Data Discard</i>	Jon C.R. Bennett	April 30, 2001 09/845,541	RiverDelta Networks, Inc.	Utility Conversion of Serial No. 60/201,059, filed May 1, 2000

Pending Trademark Applications

United States of America

Trademark	Owner	Application No.	Filing Date	Classes
BSR	RiverDelta Networks, Inc.	76/190,566	January 5, 2001	9, 42 ✓
BSR	RiverDelta Networks, Inc.	75/935,978	March 3, 2000	9, 37, 42 ✓
Misc. Design (Logo)	RiverDelta Networks, Inc.	75/933,388	March 2, 2000	9, 37, 42 ✓
RDN	RiverDelta Networks, Inc.	75/935,672	March 3, 2000	9, 37, 42 ✓
RDN	RiverDelta Networks, Inc.	76/191,770	January 5, 2001	9, 42 ✓
RIVERDELTA	RiverDelta Networks, Inc.	75/933,602	March 1, 2000	9, 37, 42 ✓
RIVERDELTA	RiverDelta Networks, Inc.	76/190,567	January 5, 2001	9, 42 ✓
RIVERGUIDE	RiverDelta Networks, Inc.	76/193,847	January 15, 2001	9, 37, 42 ✓
SMARTFLOW	RiverDelta Networks, Inc.	75/935,754	March 3, 2000	9, 37, 42 ✓

European Community

Trademark	Owner	Application No.	Filing Date	Classes
BSR	RiverDelta Networks, Inc.	1,678,564	May 26, 2000	9, 37, 42
Misc. Design (Logo)	RiverDelta Networks, Inc.	1,677,608	May 26, 2000	9, 16, 37, 42
RDN	RiverDelta Networks, Inc.	1,677,582	May 26, 2000	9, 16, 37, 42
RIVERDELTA	RiverDelta Networks, Inc.	1,678,218	May 26, 2000	9, 16, 37, 42
SMARTFLOW	RiverDelta Networks, Inc.	1,765,973	July 20, 2000	9, 16, 37, 42

Registered Internet Domain Names

Domain Name	Owner	Registration Renewal Date
riverdelta.org	RiverDelta Networks, Inc.	June 23, 2003
riverdeltanetworks.org	RiverDelta Networks, Inc.	June 23, 2003
riverdeltanetworks.com	RiverDelta Networks, Inc.	June 23, 2003
riverdeltanetworks.net	RiverDelta Networks, Inc.	June 23, 2003
riverdelta.com	RiverDelta Networks, Inc.	June 23, 2003
riverdelta.net	RiverDelta Networks, Inc.	July 7, 2003

Unregistered Intellectual Property

(i) Invention Disclosures

Invention Disclosed	Inventor
<i>Integrated Rate Limiting with Hierarchical Deficit Weighted Round Robin Scheduler</i>	Zhao Liu
<i>A Mechanism to Implement a Highly Available CMTS using a combination of Redundant components, RF and IF Relays</i>	Gerry White
<i>Hierarchical Packet Discard Mechanism</i>	Jon C.R. Bennett
<i>Efficient Buffer Accounting for Performing Longest Queue Discard</i>	Jon C.R. Bennett
<i>Method for Writing Network Packet Decoders</i>	Raj Duggal

(ii) – Proprietary Information

Area	Title	Author	Version
System Architecture	BSR 64000 System Architecture	P. Gerber	12
Market Requirements	BSR 64000 Market Requirements Specification	P. Gerber	7
	ATM Network Interface Module Market Requirements	P. DeMello	1
	BSR 64000 10/100 Module Market Requirements	P. DeMello	1
Routing SW	Virtual Routing Functional Specification and Design Framework	A. Lau	1
	Routing Software Architecture	S. Sahoo	1
	Virtual Routing Redundancy Protocol Design Specification	S. Sahoo	1
	IS-IS Design Specification	S. Sahoo	1
	Cable Bundling Design Specification	S. Sahoo	1
	PIM Sparse Mode Design Specification	S. Sahoo	1

IP Multicast Routing Architecture	S. Sahoo	1
Tunnel Interface Design Specification	S. Sahoo	1
Interface Manager Design Specification	S. Sahoo	1
Routing Policy Functional Specification	S. Sahoo	1
Carrier Class Routing Software Requirements	S. Sahoo	1
CLI Command List	S. Sahoo	1
CLI Functional Requirements Specification	S. Sahoo	2
System Logger API Specification	S. Sahoo	2
Tachyon SRM Software Requirements	R. Duggal	1
Resource Manager Functional Specification	K. Sheth	2
Statistics Manager	K. Sheth	3
Interslot Communications Protocol (ICP)	K. Sheth	2
MPLS Functional Specification	K. Sheth	2
Fastpath Programming API	K. Sheth	2
RiverDelta Build Procedure	K. Sheth	1
Fastpath Entry Format in HW	K. Sheth	2
Switch Fabric Header Document	K. Sheth	2
Buffer Manager Memory Requirements	K. Sheth	1
Automatic Protection Switching	K. Sheth	1
Tachyon BootROM Specification	S. Fang	2
Transparent Bridge Design for RDN Stand-alone CMTS	Z. Liu	1
Tachyon CMTS Data Path Architecture (Software)	Z. Liu	1
Tachyon Baseline Manager Software Design	J. Chang	1
Tachyon Resource Manager	Wei Chen	1
SmartSpectrum Spectrum Management	W. Chen	2
MAC Manager	W. Chen	1
Upstream Bandwidth Manager	W. Chen	1

CMTS SW

CMTS HW	Hardware Layer-2 Forwarding Engine Design for BSR1000	Z. Liu	1
	Tachyon CMTS Data Path Architecture (Hardware)	Z. Liu	1
	Topgun CMTS Module Data-path Architecture	Z. Liu	1
	Tachyon CMTS Data Path Architecture (Hardware)	Z. Liu	1
RiverGuide	Automated Subscriber Management System	R. Ramamirtham	1
	Tachyon Subscriber Management and Provisioning System Architecture	R. Ramamirtham	1
	XML Interfaces	R. Ramamirtham	1
	Service Management System	R. Ramamirtham	1
	SMS API	R. Ramamirtham	1
	DHCP Relay Agent	R. Ramamirtham	1
	LDAP Schema	R. Ramamirtham	1
	RiverGuide LDAP Schema	R. Ramamirtham	3
	RiverGuide Dynamic Quality of Service MIB Definition	R. Ramamirtham	4
	RiverGuide Overview	R. Ramamirtham	2
	RiverGuide Scheduler Design	R. Ramamirtham	2
	RiverGuide Service Management Test Plan	R. Ramamirtham	4
	RiverGuide Report Generator Test Plan	R. Ramamirtham	2
	RiverGuide Functional Specification	R. Ramamirtham	2
	RiverGuide GUI Design	R. Ramamirtham	2
	RiverGuide CLI Parser	R. Ramamirtham	3
	RiverGuide Coding Guidelines	R. Ramamirtham	1
	RiverGuide Flap List Design	R. Ramamirtham	1
	RiverGuide Interface for Third Party Provisioning/Mediation Systems	R. Ramamirtham	1
	RiverGuide Cable Modem Configuration File	R. Ramamirtham	1

Editor

RiverGuide Policy Scheduler Algorithm Design	R. Ramamirtham	2
RiverGuide Server Design	R. Ramamirtham	1
Switch Fabric Bridge	D. Pattnaik	3
Tachyon Buffer Management FPGA	M. Kiernicki	6
Fast Path Forwarding Engine	D. Chen	17
SRM Test Plan	D. Pattnaik	2
Buffer Manager MAC Interface Functional Specification	D. Chen	8
Buffer Manager Switch Fabric Interface	T. Ray	1
Generation 2 Chip Architecture Rev. 1	D. Chen	1
Generation 2 Chip Architecture	D. Chen	4
BM1.2 Test Plan	J. Murphy	3
Tests1_2.xls	J. Murphy	14
Buffer Manager 1.3 FPGA Gigabit Mac Design Specification	F. Booth	11
Generation2 Buffer Manager I/O Interface	M. Kaiser	2
QoS Functional Specification	J. Bennett	1
Trunk Motherboard and QoS Daughterboard Interface	M. Holjo	4
Gen2 I/O FPGA Specification	M. Kaiser	4
CMTS Lockup Prevention (Abort)	M. Holjo	1
POS, GIGe, ATM and OC48 FPGA Logic Verification Test Plan	R. Abato	1
Buffer Manager 1.6 FPGA Eight Port Ethernet Design Specification	F. Booth	17
QoS Statistics FPGA Design Specification	F. Booth	7
QoS Policer FPGA Design Specification	M. Holjo	4
Buffer Manager 1.7 Functional Specification	P. Stropparo	1
MPLS Processing Hardware Functional Specification	M. Kiernicki	5

FPGA/ASIC

Hardware	Buffer Manager Design Spec., Appendix for Rate Limiting	M. Holjo	1
	Buffer Manager Design Spec., Appendix for Tunneling	M. Holjo	1
	Tachyon Supervisor Resource Module and Switch Fabric Functional Specification	D. Merriman	4
	OC3/OC12 POS Trunk Module Architecture	M. Bagherzadeh	1
	High Speed I/O Module Architecture	M. Bagherzadeh	2
	OC48 ADM Trunk Interface Module Architecture	M. Bagherzadeh	1
	Gigabit Ethernet Trunk Module Architecture	M. Bagherzadeh	1
	OSR2000- Dual OC48/Dual Gig Ethernet	M. Bagherzadeh	1
	OSR2000- OC3/OC12	M. Bagherzadeh	1
	OSR-2000 Dual Gig and OC3/OC12	D. Alleyne	1
	8-Port Fast Ethernet Switch Module	D. Alleyne	1
	ATM Hardware Specification	D. Alleyne	1
	ATM Timing Margins	D. Alleyne	1
	ATM Power Dissipation	D. Alleyne	1
Diagnostics	TIM Diagnostics Specification	C. Hacker	3
	HSIM/SRM2/3 Bring up and Vision Click Usage	C. Hacker	7
	Quick Reference, HSIM Bring Up	C. Hacker	6
	Quick Reference, SRM2 Board Bring Up	C. Hacker	7
	Quick Reference, SRM3 Board Bring Up	C. Hacker	5
	Diagnostic System Test	C. Hacker	5
	Diag. Packet Generator	C. Hacker	2
Regulatory	Tachyon Regulatory Requirements	M. Campanella	1
	BSR 64000 Release 1.0 FCC Certificate	M. Campanella	1
	BSR 64000 Release 1.0 ICES-0003 Certificate	M. Campanella	1

	BSR 64000 Release 1.0 GR-1089 EMC Certificate	M. Campanella	1
	BSR 64000 Release 1.0 EN 300 386 Certificate	M. Campanella	1
	BSR 64000 Demko Certificate 129604-01	M. Campanella	1
	BSR 64000 CB Certificate US-4793-UL	M. Campanella	1
	BSR 1000 FCC Certificate of Conformity 000515	M. Campanella	1
	BSR 1000 FCC Test Report 000515	M. Campanella	1
White Papers	Multiple Service Provider Access for HFC Networks	G. White	1
	Router/CMTS Requirements for VOIP	G. White	1
	Eliminating Open Access Technology Barriers	J. Walker	1
	QoS: One HFC Network, Multiple Revenue Streams	J. Walker	2
	Subscriber Management Whitepaper	J. Walker	2
	Carrier-Class, Intelligent Edge Routing Required for Next Generation Cable Services	J. Walker	
Datasheets	BSR 64000 System Overview	J. Walker	2
	DOCSIS Module	J. Walker	1
	Network Interface Module	J. Walker	1
	BSR 1000	J. Walker	1
	RiverGuide Service Creation System	J. Walker	1
	RiverDelta Corporate Overview	J. Walker	1
System Documentation	BSR 64000 Quick Start Guide (Release 1.0)	D. McAlpine	1
	BSR 64000 Installation Guide (Release 1.0)	T. Bizzarro	1
	BSR 64000 Configuration and Management Guide (Release 1.0)	P. Laramée	1
	BSR 64000 Command Reference Guide (Release 1.0)	J. Spaulding	1
	BSR 64000 SNMP MIB Reference Guide (Release 1.0)	R. Lindberg	1

BSR Troubleshooting Guide (Release 1.0)	D. McAlpine	1
Release Notes - BSR 64000 Release 1.0	R. Lindberg	1
Release Notes – BSR 64000 Release 1.0.2	T. Bizzarro	1
BSR 1000 Quick Start Guide (Release 1.0)	D. McAlpine	1
BSR 1000 Installation Guide (Release 1.0)	T. Bizzarro	1
BSR 1000 Configuration and Management Guide (Release 1.0)	P. Laramée	1
BSR 1000 Command Reference Guide (Release 1.0)	J. Spaulding	1
BSR 1000 SNMP MIB Reference Guide (Release 1.0)	R. Lindberg	1
BSR Troubleshooting Guide (Release 1.0)	D. McAlpine	1
Release Notes – BSR 1000 Release 1.0	T. Bizzarro	1
BGP4 Function Test Plan	H. Kim	1
Tachyon Test Specification	D. Grantham	1
RIP and OSPF Functionality Test Plan	H. Kim	1
BSR 64000 System Test Plan for CMTS System Testing	A. Donati	9
BSR 64000 System Test Plan Checklist for CMTS	A. Donati	9
BSR 64000 SNMP Traps	A. Donati	3
BSR 64000 SNMP MIB Checklist	A. Donati	1
BSR 64000 SMS Test Plan	P. Tangirala	2
BSR 64000 SNMP Checklist	P. Tangirala	1
CATV Plant Diagram A	M. Belland	1
CATV Plant Diagram B	M. Belland	1
CMTS Center Frequency Chart – North America	M. Belland	1
RF Test Plan Outline	M. Belland	5
RF System Test Plan for BSR 1000	M. Belland	1

System Testing

Training

Module 0 – Introduction	A. Konar	1
Module 1- Evolution of R/F	A. Konar	1
Module 2- Introduction to the BSR 1000	A. Konar	1
Module 3 – Electronic Communications	A. Konar	1
Module 4- Introduction to Internetworking	A. Konar	1
Module 5 – Introduction to DOCSIS	A. Konar	1
Module 6 – CATV Systems	A. Konar	1
Module 7 – CM to CMTS Operation	A. Konar	1
Module 8 – Internetworks	A. Konar	1
Module 9 – RIP	A. Konar	1
Module 10 – Appendix A	A. Konar	1
Module 11 – Appendix B	A. Konar	1
Module 12 – Appendix C	A. Konar	1
Lab Guide	A. Konar	1
Lab Diagrams	A. Konar	1
Module 0 – Introduction	H. Miller	1
Module 1 – Install	H. Miller	1
Module 2 – Initial Config	H. Miller	1
Module 3 – Routing Basics	H. Miller	1
Module 4 – CMTS Configuration	H. Miller	1
Module 5 – Dynamic Routing (RIP)	H. Miller	1
Module 6 – OSPF	H. Miller	1
Module 7 – BGP	H. Miller	1
Module 8 – Appendix A – Labs	H. Miller	1
Module 9 – Appendix B – Maps and addresses	H. Miller	1
Module 10 – Appendix C – Supplementary Materials	H. Miller	1
Lab Diagrams and Addressing Scheme	H. Miller	1

Cisco Network Registrar – Self-study Guide

H. Miller

1

Lab Guide

H. Miller

1

Fabrication Family Data for RDN PCAs

PCB number	Board Description	Schematic	Layout File	Assembly Drawing	Fabrication Drawing	Outline Drawing	Mechanical Assembly	Reports to PCAs	
PCB-0007-05	CMTS 1x4 Dual 4 Meg flash BSR 1K Components	SCH-0007-05_revA.pdf	PCB-0007-05_rev01.brd	DWG-0011-05_revA.pdf	DWG-0010-05_revA.pdf	DWG-0168-01_revA.pdf	DWG-0164-01_revA.pdf	PCA-0007-05 PCA-0027-03	BSR64 BSR1
PCB-0012-01	CMTS 1x4 I/O	SCH-0012-01_revA.pdf	PCB-0012-01_revA.brd	DWG-0035-01_revA.pdf	DWG-0034-01_revA.pdf	DWG-0033-01_revA.pdf	N/A	PCA-0012-01	
PCB-0020-01	CMTS 2x8 Downstream (Analog Upconverter)	SCH-0020-02_rev01.pdf	PCB-0020-02_rev01.brd	DWG-0078-01_rev01.pdf	DWG-0077-01_rev01.pdf	DWG-0076-01_rev01.pdf	N/A	PCA-0020-02	
PCB-0029-01	CMTS 2x8 TI	SCH-0029-01_rev01.pdf	PCB-0029-01_rev01.brd	DWG-0192-01_rev01.pdf	DWG-0191-01_rev01.pdf	DWG-0190-01_rev01.pdf	N/A	PCA-0029-01	
PCB-0033-01	Digital Upconverter	SCH-0033-01_rev01.pdf	PCB-0033-01_rev01.brd	DWG-0243-01_rev01.pdf	DWG-0242-01_rev01.pdf	DWG-0241-01_rev01.pdf	N/A	PCA-0033-01	
PCA-0042-02	CMTS Protected I/O 1X4	SCH-0042-02_rev01.pdf	PCB-0042-02_rev01.brd	DWG-0249-02_rev01.pdf	DWG-0248-02_rev01.pdf	DWG-0247-02_rev01.pdf	N/A	PCA-0042-02	
PCA-0043-02	CMTS Spare I/O 1X4	SCH-0043-02_rev01.pdf	PCB-0043-02_rev01.brd	DWG-0252-02_rev01.pdf	DWG-0251-02_rev01.pdf	DWG-0250-01_rev01.pdf	N/A	PCA-0043-02	
PCB-0045-02	CMTS 2x8 Broadcom	SCH-0045-02_rev01.pdf	PCB-0045-02_rev01.brd	DWG-0262-01_rev01.pdf	DWG-0261-01_rev01.pdf	DWG-0260-01_rev01.pdf	N/A	PCA-0045-02 PCA-0065-02	BSR64 2x8 BSR2
PCB-0044-01	CMTS GigE Daughter Card	SCH-0044-01_rev01.pdf	PCB-0044-01_rev01.brd	DWG-0259-01_rev01.pdf	DWG-0258-01_rev01.pdf	DWG-0259-01_rev01.pdf	N/A	PCA-0044-01	
PCB-0024-02	BSR1000 RJ45 adapter	SCH-0024-02_revA.pdf	PCB-0024-02_revA.brd	DWG-0131-01_revA.pdf	DWG-0130-01_revA.pdf	DWG-0129-01_revA.pdf	N/A	PCA-0024-02	
PCB-0049-01	RF Backplane 1x4 50A	SCH-0049-01_rev01.pdf (rfbp1x4_sch-0049-01.pdf)	PCB-0049-01_rev01.brd	DWG-0275-01_rev01.pdf	DWG-0274-01_rev01.pdf	DWG-0273-01_rev01.pdf	N/A	PCA-0049-01	
PCB-0053-01	Midplane 2x8 / 1x4 50A	SCH-0053-01_rev01.pdf	PCB-0053-01_rev01.brd	DWG-0288-01_rev01.pdf	DWG-0287-01_rev01.pdf	DWG-0286-01_rev01.pdf	N/A		
PCB-0055-02	CMTS 1x4 US/Euro	SCH-0055-02_rev01.pdf	PCB-0055-02_rev01.brd	DWG-301-02_rev01.pdf	DWG-300-02_rev01.pdf	DWG-302-01_rev01.pdf	DWG-0365-01_rev01.pdf BSR1K	PCA-0055-02 PCA-0056-02	BSR1 US BSR1 Euro
PCA-0005-03	SRM	SCH-0002-3_revA.pdf	PCB-0006-03_revA_deliverables.zip	bundled in Zip file	bundled in Zip file	bundled in Zip file	DWG-0364-01_rev03.pdf BSR64K	PCA-0057-02 PCA-0058-02	BSR64 US BSR64 Euro
PCA-0011-03	SRM I/O	SCH-0011-03_revA.pdf	PCB-0011-03_revI_deliverables.z	bundled in Zip file	bundled in Zip file	bundled in Zip file			

PCB number	Board Description	Schematic	Layout File	Assembly Drawing	Fabrication Drawing	Outline Drawing	Mechanical Assembly	Reports to PCAs
			ip					
PCA-0025-03	Gigabit Ethernet (1 Port)	SCH-0025-3_rev01.pdf	PCB-0025-03_rev01_deliverables.zip	bundled in Zip file	bundled in Zip file	bundled in Zip file		
PCA-0013-02	Optical I/O	SCH-0013-02_revA.pdf	PCB-0013-02_rev01_deliverables.zip	bundled in Zip file	bundled in Zip file	bundled in Zip file		
PCA-0014-01	Fast Ethernet (8 Port)	SCH-0014-01_rev02.pdf	PCB-0014-01_deliverables.zip	bundled in Zip file	bundled in Zip file	bundled in Zip file		
PCA-0015-01	Fast Ethernet I/O	SCH-0015-01_latest.pdf	PCB-0015-01_rev01_deliverables.zip	bundled in Zip file	bundled in Zip file	bundled in Zip file		
PCA-0010-06	POS (1 Port) + FastE (1 Port)	SCH-0010-06_rev_C.pdf	PCB-0010-02_rev01_deliverables.zip	bundled in Zip file	bundled in Zip file	bundled in Zip file		
PCA-0010-06	POS (2 Port)	SCH-0010-06_rev_C.pdf	PCB-0010-02_rev01_deliverables.zip	bundled in Zip file	bundled in Zip file	bundled in Zip file		
PCA-0026-01	OC-48 ADM	SCH-0026-01.pdf	PCB-0026-01_deliverables.zip	bundled in Zip file	bundled in Zip file	bundled in Zip file		
PCA-0035-01	ATM (2 Port)	SCH-0035-01_rev01.pdf	PCB-0035-01_rev01_deliverables.zip	bundled in Zip file	bundled in Zip file	bundled in Zip file		
PCB-0059-01	CMTS Quad Ethernet Daughter Card	SCH-0059-01_rev01.pdf	PCB-0059-01_rev01.brd	DWG-0310-01_rev01.pdf	DWG-309-01_rev01.pdf	DWG-308-01_rev01.pdf	N/A	PCA-0059-01
PCB-0073-01	Active I/O CMTS 2X8	SCH-0073-01_rev01.pdf	PCB-0073-01_rev01.brd	DWG-0353-01_rev01.pdf	DWG-0352-01_rev01.pdf	DWG-0351-01_rev01.pdf	N/A	PCA-0073-01
PCB-0074-01	Spare I/O CMTS 2x8	SCH-0074-01_rev01.pdf	PCB-0074-01_rev01.brd	DWG-0356-01_rev01.pdf	DWG-0355-01_rev01.pdf	DWG-0354-01_rev01.pdf	N/A	PCA-0074-01
PCB-0075-01	Spare RF Backplane 2x8	SCH-0075-01_rev01.pdf	PCB-0075-01_rev01.brd	DWG-0359-01_rev01.pdf	DWG-0358-01_rev01.pdf	DWG-0357-01_rev01.pdf	N/A	PCA-0075-01
PCB-0079-01	Midplane, 60A	SCH-0079-01_rev01.pdf	PCB-0079-01_rev01.brd	DWG-0381-01_rev01.pdf	DWG-0380-01_rev01.pdf	DWG-0379-01_rev01.pdf	N/A	PCA-0079-01
PCB-0080-01	RF Backplane 60A	SCH-0080-01_rev01.pdf	PCB-0080-01_rev01.brd	DWG-0384-01_rev01.pdf	DWG-0383-01_rev01.pdf	DWG-0382-01_rev01.pdf	N/A	PCA-0080-01
Chassis Number	Description	Mechanical Assembly	Base Unit Assembly	Other	Sheetmetal Subassembly	CMTS PCAs used		
CHS-0002-04	1U CMTS BSR1000	N/A	DWG-0232-01_revF.pdf	DWG-0203-01_revB.pdf	N/A	PCA-0027-03		
CHS-0007-01	1U CMTS BSR1000	N/A	DWG-0366-01_rev02.pdf	DWG-0203-01_revB.pdf	N/A	PCA-0055-02		

PCB number	Board Description US	Schematic	Layout File	Assembly Drawing	Fabrication Drawing	Outline Drawing	Mechanical Assembly	Reports to PCAs
CHS-0008-01	1U CMTS BSR1000 Euro	N/A	DWG-0366-01_rev02.pdf	DWG-0203-01_revB.pdf	N/A	PCA-0056-02		
CHS-0015-01	14U Redundant 1X4, 50A BSR64K Chassis	DWG-0051-03_rev03.pdf	DWG-0362-01_rev01.pdf	none	SUB-0017-03	PCA-0057-02 + I/O PCA-0058-02 + I/O		
CHS-0006-01	14U Redundant 2X8, 60A BSR64K Chassis	TBD	TBD	TBD	TBD	PCA-0045-02 + I/O		
CHS-0017-01	BSR 2000, CMTS 2X8 with Ethernet	TBD	TBD	TBD	TBD	PCA-0065-02 + I/O		

Unfiled Trademarks

Trademark	Country
BSR	Australia China Japan Republic of Korea Singapore
RDN	Australia China Japan Republic of Korea Singapore
RIVERDELTA	Australia China Japan Republic of Korea Singapore
RIVERGUIDE	Australia China Japan Republic of Korea Singapore
SMARTFLOW	Australia China Japan Republic of Korea Singapore

Other Agreements

NAME	PARTIES
RSVPD ReSerVation Protocol Daemon	University of Southern California
Xilinx Annual Software Support Agreement	RiverDelta Xilinx, Inc.
RSA Receipt of Services	RiverDelta RSA Data Security, Inc.
Software License Agreement, Addendum and Purchase Orders	Packet Technologies phase2
Purchase Order #506	RiverDelta Wind River Systems, Inc.
Emperative, Inc. Relationship Agreement	RiverDelta Networks Emperative, Inc.
Preferred Provider Agreement -- RiverDelta Networks, Inc.	RiverDelta Networks Compath, Inc.
Employment Letter w/NDA, Non-compete Agreement, Developments Agreement	RiverDelta Networks, Inc. F. Dennis Periquet
@Home Network -- @Home Testing and Approval Agreement	RiverDelta Networks, Inc. At Home Corp.
OEM Program License Agreement	RiverDelta Networks Virata Corp.
EMWEB Evaluation License Agreement	RiverDelta Networks Agranat Systems, Inc.
Software Evaluation License and Agreement	RiverDelta Networks ClearBand, LLC
Memorandum of Understanding	RiverDelta Networks MindTree Consulting Pvt. Ltd.
RSA Security Inc. Professional Services Agreement	RiverDelta Networks, Inc. RSA Security, Inc.
Open Source Licenses	
RiverGuide Licenses	n/a
Netscape Public License	Netscape Corp.
Project Agreement No. A3A55 Revision A	RiverDelta Networks Agilent Technologies Company Software

Area	Title	Author	Version
System Architecture	BSR 64000 System Architecture	P. Gerber	12
Market Requirements	BSR 64000 Market Requirements Specification	P. Gerber	7
	ATM Network Interface Module Market Requirements	P. DeMello	1
	BSR 64000 10/100 Module Market Requirements	P. DeMello	1
Routing SW	Virtual Routing Functional Specification and Design Framework	A. Lau	1
	Routing Software Architecture	S. Sahoo	1
	Virtual Routing Redundancy Protocol Design Specification	S. Sahoo	1
	IS-IS Design Specification	S. Sahoo	1
	Cable Bundling Design Specification	S. Sahoo	1
	PIM Sparse Mode Design Specification	S. Sahoo	1
	IP Multicast Routing Architecture	S. Sahoo	1
	Tunnel Interface Design Specification	S. Sahoo	1
	Interface Manager Design Specification	S. Sahoo	1
	Routing Policy Functional Specification	S. Sahoo	1
	Carrier Class Routing Software Requirements	S. Sahoo	1
	CLI Command List	S. Sahoo	1
	CLI Functional Requirements Specification	S. Sahoo	2
	System Logger API Specification	S. Sahoo	2
	Tachyon SRM Software Requirements	R. Duggal	1
	Resource Manager Functional Specification	K. Sheth	2
	Statistics Manager	K. Sheth	3

	Interslot Communications Protocol (ICP)	K. Sheth	2
	MPLS Functional Specification	K. Sheth	2
	Fastpath Programming API	K. Sheth	2
	RiverDelta Build Procedure	K. Sheth	1
	Fastpath Entry Format in HW	K. Sheth	2
	Switch Fabric Header Document	K. Sheth	2
	Buffer Manager Memory Requirements	K. Sheth	1
	Automatic Protection Switching	K. Sheth	1
	Tachyon BootROM Specification	S. Fang	2
CMTS SW	Transparent Bridge Design for RDN Stand-alone CMTS	Z. Liu	1
	Tachyon CMTS Data Path Architecture (Software)	Z. Liu	1
	Tachyon Baseline Manager Software Design	J. Chang	1
	Tachyon Resource Manager	Wei Chen	1
	SmartSpectrum Spectrum Management	W. Chen	2
	MAC Manager	W. Chen	1
	Upstream Bandwidth Manager	W. Chen	1
CMTS HW	Hardware Layer-2 Forwarding Engine Design for BSR1000	Z. Liu	1
	Tachyon CMTS Data Path Architecture (Hardware)	Z. Liu	1
	Topgun CMTS Module Data-path Architecture	Z. Liu	1
	Tachyon CMTS Data Path Architecture (Hardware)	Z. Liu	1
RiverGuide	Automated Subscriber Management System	R. Ramamirtham	1
	Tachyon Subscriber Management and Provisioning System Architecture	R. Ramamirtham	1
	XML Interfaces	R. Ramamirtham	1

Service Management System	R. Ramamirtham	1
SMS API	R. Ramamirtham	1
DHCP Relay Agent	R. Ramamirtham	1
LDAP Schema	R. Ramamirtham	1
RiverGuide LDAP Schema	R. Ramamirtham	3
RiverGuide Dynamic Quality of Service MIB Definition	R. Ramamirtham	4
RiverGuide Overview	R. Ramamirtham	2
RiverGuide Scheduler Design	R. Ramamirtham	2
RiverGuide Service Management Test Plan	R. Ramamirtham	4
RiverGuide Report Generator Test Plan	R. Ramamirtham	2
RiverGuide Functional Specification	R. Ramamirtham	2
RiverGuide GUI Design	R. Ramamirtham	2
RiverGuide CLI Parser	R. Ramamirtham	3
RiverGuide Coding Guidelines	R. Ramamirtham	1
RiverGuide Flap List Design	R. Ramamirtham	1
RiverGuide Interface for Third Party Provisioning/Mediation Systems	R. Ramamirtham	1
RiverGuide Cable Modem Configuration File Editor	R. Ramamirtham	1
RiverGuide Policy Scheduler Algorithm Design	R. Ramamirtham	2
RiverGuide Server Design	R. Ramamirtham	1
<i>FPGA/ASIC</i> Switch Fabric Bridge	D. Pattnaik	3
Tachyon Buffer Management FPGA	M. Kiernicki	6
Fast Path Forwarding Engine	D. Chen	17
SRM Test Plan	D. Pattnaik	2
Buffer Manager MAC Interface Functional Specification	D. Chen	8
Buffer Manager Switch Fabric Interface	T. Ray	1

Hardware	Generation 2 Chip Architecture Rev. 1	D. Chen	1
	Generation 2 Chip Architecture	D. Chen	4
	BMI.2 Test Plan	J. Murphy	3
	Tests1_2.xls	J. Murphy	14
	Buffer Manager 1.3 FPGA Gigabit Mac Design Specification	F. Booth	11
	Generation2 Buffer Manager I/O Interface	M. Kaiser	2
	QoS Functional Specification	J. Bennett	1
	Trunk Motherboard and QoS Daughterboard Interface	M. Holjo	4
	Gen2 I/O FPGA Specification	M. Kaiser	4
	CMTS Lockup Prevention (Abort)	M. Holjo	1
	POS, GIGe, ATM and OC48 FPGA Logic Verification Test Plan	R. Abato	1
	Buffer Manager 1.6 FPGA Eight Port Ethernet Design Specification	F. Booth	17
	QoS Statistics FPGA Design Specification	F. Booth	7
	QoS Policer FPGA Design Specification	M. Holjo	4
	Buffer Manager 1.7 Funcational Specification	P. Stropparo	1
	MPLS Processing Hardware Functional Specification	M. Kiernicki	5
	Buffer Manager Design Spec., Appendix for Rate Limiting	M. Holjo	1
	Buffer Manager Design Spec., Appendix for Tunneling	M. Holjo	1
	Tachyon Supervisor Resource Module and Switch Fabric Functional Specification	D. Merriman	4
	OC3/OC12 POS Trunk Module Architecture	M. Bagherzadeh	1
	High Speed I/O Module Architecture	M. Bagherzadeh	2
	OC48 ADM Trunk Interface Module Architecture	M. Bagherzadeh	1

	Gigabit Ethernet Trunk Module Architecture	M. Bagherzadeh	1
	OSR2000- Dual OC48/Dual Gig Ethernet	M. Bagherzadeh	1
	OSR2000- OC3/OC12	M. Bagherzadeh	1
	OSR-2000 Dual Gig and OC3/OC12	D. Alleyne	1
	8-Port Fast Ethernet Switch Module	D. Alleyne	1
	ATM Hardware Specification	D. Alleyne	1
	ATM Timing Margins	D. Alleyne	1
	ATM Power Dissipation	D. Alleyne	1
	TIM Diagnostics Specification	C. Hacker	3
Diagnostics	HSIM/SRM2/3 Bring ip and Vision Click Usage	C. Hacker	7
	Quick Reference, HSIM Bring Up	C. Hacker	6
	Quick Reference, SRM2 Board Bring Up	C. Hacker	7
	Quick Reference, SRM3 Board Bring Up	C. Hacker	5
	Diagnostic System Test	C. Hacker	5
	Diag. Packet Generator	C. Hacker	2
Regulatory	Tachyon Regulatory Requirements	M. Campanella	1
	BSR 64000 Release 1.0 FCC Certificate	M. Campanella	1
	BSR 64000 Release 1.0 ICES-0003 Certificate	M. Campanella	1
	BSR 64000 Release 1.0 GR-1089 EMC Certificate	M. Campanella	1
	BSR 64000 Release 1.0 EN 300 386 Certificate	M. Campanella	1
	BSR 64000 Demko Certificate 129604-01	M. Campanella	1
	BSR 64000 CB Certificate US-4793-UL	M. Campanella	1
	BSR 1000 FCC Certificate of Conformity 000515	M. Campanella	1
	BSR 1000 FCC Test Report 000515	M. Campanella	1

White Papers	Multiple Service Provider Access for HFC Networks	G. White	1
	Router/CMTS Requirements for VOIP	G. White	1
	Eliminating Open Access Technology Barriers	J. Walker	1
	QoS: One HFC Network, Multiple Revenue Streams	J. Walker	2
	Subscriber Management Whitepaper	J. Walker	2
	Carrier-Class, Intelligent Edge Routing Required for Next Generation Cable Services	J. Walker	
Datasheets	BSR 64000 System Overview	J. Walker	2
	DOCSIS Module	J. Walker	1
	Network Interface Module	J. Walker	1
	BSR 1000	J. Walker	1
	RiverGuide Service Creation System	J. Walker	1
	RiverDelta Corporate Overview	J. Walker	1
System Documentation	BSR 64000 Quick Start Guide (Release 1.0)	D. McAlpine	1
	BSR 64000 Installation Guide (Release 1.0)	T. Bizzarro	1
	BSR 64000 Configuration and Management Guide (Release 1.0)	P. Laramée	1
	BSR 64000 Command Reference Guide (Release 1.0)	J. Spaulding	1
	BSR 64000 SNMP MIB Reference Guide (Release 1.0)	R. Lindberg	1
	BSR Troubleshooting Guide (Release 1.0)	D. McAlpine	1
	Release Notes - BSR 64000 Release 1.0	R. Lindberg	1
	Release Notes – BSR 64000 Release 1.0.2	T. Bizzarro	1
	BSR 1000 Quick Start Guide (Release 1.0)	D. McAlpine	1
	BSR 1000 Installation Guide (Release 1.0)	T. Bizzarro	1
	BSR 1000 Configuration and Management	P. Laramée	1

Guide (Release 1.0)

BSR 1000 Command Reference Guide (Release 1.0) J. Spaulding 1

BSR 1000 SNMP MIB Reference Guide (Release 1.0) R. Lindberg 1

BSR Troubleshooting Guide (Release 1.0) D. McAlpine 1

Release Notes – BSR 1000 Release 1.0 T. Bizzarro 1

BGP4 Function Test Plan H. Kim 1

Tachyon Test Specification D. Grantham 1

RIP and OSPF Functionality Test Plan H. Kim 1

BSR 64000 System Test Plan for CMTS System Testing A. Donati 9

BSR 64000 System Test Plan Checklist for CMTS A. Donati 9

BSR 64000 SNMP Traps A. Donati 3

BSR 64000 SNMP MIB Checklist A. Donati 1

BSR 64000 SMS Test Plan P. Tangirala 2

BSR 64000 SNMP Checklist P. Tangirala 1

CATV Plant Diagram A M. Belland 1

CATV Plant Diagram B M. Belland 1

CMTS Center Frequency Chart – North America M. Belland 1

RF Test Plan Outline M. Belland 5

RF System Test Plan for BSR 1000 M. Belland 1

Module 0 – Introduction A. Konar 1

Module 1- Evolution of R/F A. Konar 1

Module 2- Introduction to the BSR 1000 A. Konar 1

Module 3 – Electronic Communications A. Konar 1

Module 4- Introduction to Internetworking A. Konar 1

System Testing

Training

Module 5 – Introduction to DOCSIS	A. Konar	1
Module 6 – CATV Systems	A. Konar	1
Module 7 – CM to CMTS Operation	A. Konar	1
Module 8 – Internetworks	A. Konar	1
Module 9 – RIP	A. Konar	1
Module 10 – Appendix A	A. Konar	1
Module 11 – Appendix B	A. Konar	1
Module 12 – Appendix C	A. Konar	1
Lab Guide	A. Konar	1
Lab Diagrams	A. Konar	1
Module 0 – Introduction	H. Miller	1
Module 1 – Install	H. Miller	1
Module 2 – Initial Config	H. Miller	1
Module 3 – Routing Basics	H. Miller	1
Module 4 – CMTS Configuration	H. Miller	1
Module 5 – Dynamic Routing (RIP)	H. Miller	1
Module 6 – OSPF	H. Miller	1
Module 7 – BGP	H. Miller	1
Module 8 – Appendix A – Labs	H. Miller	1
Module 9 – Appendix B – Maps and addresses	H. Miller	1
Module 10 – Appendix C – Supplementary Materials	H. Miller	1
Lab Diagrams and Addressing Scheme	H. Miller	1
Cisco Network Registrar – Self-study Guide	H. Miller	1
Lab Guide	H. Miller	1

Third-Party Software

Item	Description	Source Vendor
Software Tools	Clear-Case software source control system	Rational Software, Inc.
	Vision-Click	WindRiver
	VxWorks Tornado for PowerPC and StongARM	WindRiver
	VxWorks Memory Protection Device	WindRiver
	VxSIM	WindRiver
	WindView	WindRiver
	ProfileScope	WindRiver
	MemScope	WindRiver
	IXP1200 Microcode Development Workbench	Intel
	SDS Debugger	SDS
	HP Probe	HP
	emacs	GNV
	C-Scope	Public Domain
	Visual C++	Microsoft
	SWMP Tool	Silver Creek

SYSTEM CODE

BSR Release
1.0

Board Level Support

Boot-Rom	RiverDelta
Switch Fabric Driver	RiverDelta
Flash File System	WindRiver

TCP/IP Stack

TCP/UDP/IP/ICMP/IRDP	WindRiver + River Delta
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ARP/RARP/Proxy ARP	WindRiver + River Delta
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Routing Protocols

RIPv1	WindRiver
RIPv2	RiverDelta
OSPFv2 (Carrier Class)	Phase2 + River Delta
BGPv4 (Carrier Class)	Phase2 + River Delta
Routing Policy Support (Carrier Class)	RiverDelta
IGMPv2	RiverDelta
DVMRPv3	Phase2 + River Delta

System Management & Control

DHCP Relay	RiverDelta
BOOTP Relay	RiverDelta
DNS Client	WindRiver + RDN
SNTP	RiverDelta + Wind River
FTP/TFTP	WindRiver + RDN
Access List	RiverDelta
Routing Table Management	WindRiver + River Delta
Interface Manager	RiverDelta
Cisco CLI support	RiverDelta
CLI Scripting and Config Save Support	RiverDelta
LDAPv3 Client Support	Netscape
SNMPv1/v3 Agent	Epilogue (WindRiver)
SNMP Trap & Error Logging	Epilogue (WindRiver)
Flexible Packet Tracing Support	RiverDelta
Protocol Debug mode	RiverDelta
Sys Log support	WindRiver + River Delta

Standard Mib Support	RiverDelta
DOCSIS 1.0 & DOCSIS 1.1 CMTS MIBs	RiverDelta
Show cable modem with 3 states	RiverDelta
CM reset	RiverDelta
Debug CM details	RiverDelta
Trace Route	Public Domain
Extended Ping	RiverDelta
Board-Level Diags	RiverDelta
Run-Time Debug Support	RiverDelta
ICP	Resonance Manager - River Delta

High Speed Network Interface Modules

PPP	WindRiver + River Delta
Packet-over-Sonet (POS)	RiverDelta
Fast-E, Gig Mac, Pos Drivers	RiverDelta
Fast-Path FPGA Drivers	RDN

DOCSIS Support

Registration with either DOCSIS 1.0 or DOCSIS 1.1 CM configuration.	RiverDelta
BPI and BPI+.	RiverDelta + RSA
Broadcom Reference Design-Modification of Drivers	Broadcom
Dynamic and static multicast SAID.	RiverDelta
CM initiated DSA, DSC, and DSD.	RiverDelta
CMTS initialed DSA, DSC, and DSD.	RiverDelta
Upstream Channel Change (UCC).	RiverDelta
Layer-3 classification.	RiverDelta
Concatenation.	RiverDelta
Piggy-back fragmentation.	RiverDelta

Payload header suppression.	RiverDelta
UGS, UGS-AD, nPS, and nrtPS.	RiverDelta
RFC-2670 (DOCSIS IF mib).	RiverDelta
RFC-2669 (DOCSIS Cable Device mib).	RiverDelta
BPI+ MIB.	RiverDelta
QoS MIB.	RiverDelta
DHCP option 82.	RiverDelta
Maximum CPE enforcement.	RiverDelta
Rate limiting.	RiverDelta
Minimum guaranteed traffic rate.	RiverDelta

Upstream Scheduling

Two-level hierarchical scheduling.	RiverDelta
Scheduled time scheduling for periodical grants and station maintenance grants.	RiverDelta
Deficit round robin scheduling for best effort services.	RiverDelta
Flexible MAP size with maximum length control.	RiverDelta
Leaky-bucket access control for traffic shaping.	RiverDelta
Backlog detection.	RiverDelta
Initial maintenance synchronization.	RiverDelta
Dynamic MAP lead-time.	RiverDelta
Synchronized UCD change.	RiverDelta
Zero-jitter admission for UGS, UGS-AD, and nPS.	RiverDelta

Data Forwarding

Three-level hierarchical per-flow scheduling with 8000 queues per direction.	RiverDelta
Leaky-bucket traffic policing.	RiverDelta

Longest queue push-out buffer management.	RiverDelta
Proxy ARP.	RiverDelta
Up to 8 subnets per interface.	RiverDelta

**BSR Release
1.1**

SYSTEM CODE

Routing

Policy Based Routing	RiverDelta
IS-IS	Phase 2 + River Delta
PIM-Sparse Mode	RiverDelta
Multicast Routing Table	RiverDelta
VRRP	RiverDelta

System Management and Control

SNMP Informs	Epilogue (WindRiver)
Entity Mib Support	RiverDelta
Telnet Client	Public Domain + River Delta
Mtrace	Public Domain + River Delta
Show cable modem with 20 CM states	RiverDelta
Ping DOCSIS	RiverDelta
Flap list	RiverDelta
Persistent CM States	RiverDelta
Show CPEs behind CM	RiverDelta
Disable CM	RiverDelta

**High Speed Network Interface
Modules**

Qos DRR	RiverDelta
---------	------------

CMTS Interface Bundling RiverDelta

DOCSIS Support

Upstream transmitter disable message. RiverDelta

Device class information message. RiverDelta

Multi-grant fragmentation support. RiverDelta

Pre-equalization with adjustable length
equalization training sequence. RiverDelta

Upstream channel signal to noise
measurement. RiverDelta

Subscriber mib. RiverDelta

Upstream Scheduler

Jitter sensitive grant placement. RiverDelta

Flexible MAP size with lead-time reduction. RiverDelta

Synchronized spectrum sampling. RiverDelta

Data Forwarding

CM and CPE authorization through DHCP. RiverDelta

Static ARP entry. RiverDelta

Traffic filtering. RiverDelta

Two level longest queue push out. RiverDelta

Spectrum Management

Spectrum Analysis. RiverDelta

In-band power monitoring. RiverDelta

Spectrum hopping triggered by error rate. RiverDelta

Frequency hopping. RiverDelta

Dynamic modulations, including modulation
profile, channel width, and power-level. RiverDelta

Fully configurable spectrum hopping
sequence. RiverDelta

Rollback support.

RiverDelta

Scheduled band availability.

RiverDelta

RiverGuide
1.0

RiverGuide Client/Server

RiverGuide Client
RiverGuide Server
Java Runtime Environment
Java API for XML Processing
SNMP Libraries
Java Plug-in
Java Help
IBM Task Guide Library
Java Cryptology Extensions
Netscape LDAP Library
Apache Web Server

RiverDelta
RiverDelta
Sun Microsystems
Sun Microsystems
Adventnet
Sun Microsystems
Sun Microsystems
IBM
Sun Microsystems
Netscape
Apache

Vera Developer Kit

Synopsis

FPGA/Board
Design Tools

Vera Runtime
VCS
HDL Compiler
DC-Expert
Analyzer
Covermeter
SynplifyPro

Synopsis
Synopsis
Synopsis
Synopsis
Synopsis
Synopsis
Synopsis

Verlog-XL
NCSim
Allegro Studio
Allegro Performance
CCT Performance

Cadence
Cadence
Cadence
Cadence
Cadence

Modeltech hdlsim
Leonardo

Mentor Graphics
Mentor Graphics

ViewDraw
DxDataBook
Allegro Interface
Viewdraw

Viewlogic
Viewlogic
Viewlogic
Viewlogic

Alliance

Xylinx

FPGAs

SRM Switch Fabric FPGA

RiverDelta

sfb_top_1012.mcs
sfb_top_1012.bit

SRM Redundancy PLD

RiverDelta

srm3_cp1dV4.xeb
srm3_cp1dV4.jed

Gigabit Ethernet

bm_gig_top_chipF3_rev80.bit

RiverDelta

Fast Ethernet (8-Port)

bm_8pe_top_revE6.bit

RiverDelta

Pos (1-Port) + Fast Ethernet (1 Port)

bm_1e1s_top_rev76.bit

RiverDelta

Pos (2-Port)

bm_sonet_top_revDA.bit

RiverDelta

OC-48 ADM

bm_oc48_top_revA2.bit

RiverDelta

ATM (2-Port)

Fabrication Family Data for RDN PCAs

PCB number	Board Description	Schematic	Layout File	Assembly Drawing	Fabrication Drawing	Outline Drawing	Mechanical Assembly	Reports to PCAs
PCB-0007-05	CMTS 1x4 Dual 4 Meg flash BSR 1K Components	SCH-0007-05_revA.pdf	PCB-0007-05_rev01.brd	DWG-0011-05_revA.pdf	DWG-0010-05_revA.pdf	DWG-0168-01_revA.pdf	DWG-0164-01_revA.pdf	PCA-0007-05 PCA-0027-03 BSR64K BSR1K
PCB-0012-01	CMTS 1x4 I/O	SCH-0012-01_revA.pdf	PCB-0012-01_revA.brd	DWG-0035-01_revA.pdf	DWG-0034-01_revA.pdf	DWG-0033-01_revA.pdf	N/A	PCA-0012-01
PCB-0020-01	CMTS 2x8 Downstream (Analog Upconverter)	SCH-0020-02_rev01.pdf	PCB-0020-02_rev01.brd	DWG-0078-01_rev01.pdf	DWG-0077-01_rev01.pdf	DWG-0076-01_rev01.pdf	N/A	PCA-0020-02
PCB-0029-01	CMTS 2x8 TI	SCH-0029-01_rev01.pdf	PCB-0029-01_rev01.brd	DWG-0192-01_rev01.pdf	DWG-0191-01_rev01.pdf	DWG-0190-01_rev01.pdf	N/A	PCA-0029-01
PCB-0033-01	Digital Upconverter	SCH-0033-01_rev01.pdf	PCB-0033-01_rev01.brd	DWG-0243-01_rev01.pdf	DWG-0242-01_rev01.pdf	DWG-0241-01_rev01.pdf	N/A	PCA-0033-01
PCA-0042-02	CMTS Protected I/O 1X4	SCH-0042-02_rev01.pdf	PCB-0042-02_rev01.brd	DWG-0249-02_rev01.pdf	DWG-0248-02_rev01.pdf	DWG-0247-02_rev01.pdf	N/A	PCA-0042-02
PCA-0043-02	CMTS Spare I/O 1X4	SCH-0043-02_rev01.pdf	PCB-0043-02_rev01.brd	DWG-0252-02_rev01.pdf	DWG-0251-02_rev01.pdf	DWG-0250-01_rev01.pdf	N/A	PCA-0043-02
PCB-0045-02	CMTS 2x8 Broadcom	SCH-0045-02_rev01.pdf	PCB-0045-02_rev01.brd	DWG-0262-01_rev01.pdf	DWG-0261-01_rev01.pdf	DWG-0260-01_rev01.pdf	N/A	PCA-0045-02 2x8 PCA-0065-02 BSR2K
PCB-0044-01	CMTS GigE Daughter Card	SCH-0044-01_rev01.pdf	PCB-0044-01_rev01.brd	DWG-0259-01_rev01.pdf	DWG-0258-01_rev01.pdf	DWG-0259-01_rev01.pdf	N/A	PCA-0044-01
PCB-0024-02	BSR1000 RJ45 adapter	SCH-0024-02_revA.pdf	PCB-0024-02_revA.brd	DWG-0131-01_revA.pdf	DWG-0130-01_revA.pdf	DWG-0129-01_revA.pdf	N/A	PCA-0024-02
PCB-0049-01	RF Backplane 1x4 50A	SCH-0049-01_rev01.pdf (rfb1x4_sch-0049-	PCB-0049-01_rev01.brd	DWG-0275-01_rev01.pdf	DWG-0274-01_rev01.pdf	DWG-0273-01_rev01.pdf	N/A	PCA-0049-01

PCB number	Board Description	Schematic	Layout File	Assembly Drawing	Fabrication Drawing	Outline Drawing	Mechanical Assembly	Reports to PCAs
		01.pdf)						
PCB-0053-01	Midplane 2x8 / 1x4 50A	SCH-0053-01_rev01.pdf	PCB-0053-01_rev01.brd	DWG-0288-01_rev01.pdf	DWG-0287-01_rev01.pdf	DWG-0286-01_rev01.pdf	N/A	
PCB-0055-02	CMTS 1x4 US/Euro	SCH-0055-02_rev01.pdf	PCB-0055-02_rev01.brd	DWG-301-02_rev01.pdf	DWG-300-02_rev01.pdf	DWG-302-01_rev01.pdf	DWG-0365-01_rev01.pdf BSR1K	PCA-0055-02 PCA-0056-02 BSR1K US BSR1K Euro
PCA-0005-03	SRM	SCH-0002-3_revA.pdf	PCB-0006-03_revA_deliverables.zip	bundled in Zip file	bundled in Zip file	bundled in Zip file	DWG-0364-01_rev03.pdf BSR64K	PCA-0057-02 US PCA-0058-02 Euro
PCA-0011-03	SRM I/O	SCH-0011-03_revA.pdf	PCB-0011-03_rev1_deliverables.zip	bundled in Zip file	bundled in Zip file	bundled in Zip file		
PCA-0025-03	Gigabit Ethernet (1 Port)	SCH-0025-3_rev01.pdf	PCB-0025-03_rev01_deliverables.zip	bundled in Zip file	bundled in Zip file	bundled in Zip file		
PCA-0013-02	Optical I/O	SCH-0013-02_revA.pdf	PCB-0013-02_rev01_deliverables.zip	bundled in Zip file	bundled in Zip file	bundled in Zip file		
PCA-0014-01	Fast Ethernet (8 Port)	SCH-0014-01_rev02.pdf	PCB-0014-01_deliverables.zip	bundled in Zip file	bundled in Zip file	bundled in Zip file		
PCA-0015-01	Fast Ethernet I/O	SCH-0015-01_latest.pdf	PCB-0015-01_rev01_deliverables.zip	bundled in Zip file	bundled in Zip file	bundled in Zip file		
PCA-0010-06	POS (1 Port) + FastE (1 Port)	SCH-0010-06_rev_C.pdf	PCB-0010-02_rev01_deliverables.zip	bundled in Zip file	bundled in Zip file	bundled in Zip file		
PCA-0010-06	POS (2 Port)	SCH-0010-06_rev_C.pdf	PCB-0010-02_rev01_deliverables.zip	bundled in Zip file	bundled in Zip file	bundled in Zip file		
PCA-0026-01	OC-48 ADM	SCH-0026-01.pdf	PCB-0026-01_deliverables.zip	bundled in Zip file	bundled in Zip file	bundled in Zip file		
PCA-0035-01	ATM (2 Port)	SCH-0035-01_rev01.pdf	PCB-0035-01_rev01_deliverables.zip	bundled in Zip file	bundled in Zip file	bundled in Zip file		
PCB-0059-01	CMTS Quad Ethernet Daughter Card	SCH-0059-01_rev01.pdf	PCB-0059-01_rev01.brd	DWG-0310-01_rev01.pdf	DWG-309-01_rev01.pdf	DWG-308-01_rev01.pdf	N/A	PCA-0059-01

PCB number	Board Description	Schematic	Layout File	Assembly Drawing	Fabrication Drawing	Outline Drawing	Mechanical Assembly	Reports to PCAs
PCB-0073-01	Active I/O CMTS 2x8	SCH-0073-01_rev01.pdf	PCB-0073-01_rev01.brd	DWG-0353-01_rev01.pdf	DWG-0352-01_rev01.pdf	DWG-0351-01_rev01.pdf	N/A	PCA-0073-01
PCB-0074-01	Spare I/O CMTS 2x8	SCH-0074-01_rev01.pdf	PCB-0074-01_rev01.brd	DWG-0356-01_rev01.pdf	DWG-0355-01_rev01.pdf	DWG-0354-01_rev01.pdf	N/A	PCA-0074-01
PCB-0075-01	Spare RF Backplane 2x8	SCH-0075-01_rev01.pdf	PCB-0075-01_rev01.brd	DWG-0359-01_rev01.pdf	DWG-0358-01_rev01.pdf	DWG-0357-01_rev01.pdf	N/A	PCA-0075-01
PCB-0079-01	Midplane, 60A	SCH-0079-01_rev01.pdf	PCB-0079-01_rev01.brd	DWG-0381-01_rev01.pdf	DWG-0380-01_rev01.pdf	DWG-0379-01_rev01.pdf	N/A	PCA-0079-01
PCB-0080-01	RF Backplane 60A	SCH-0080-01_rev01.pdf	PCB-0080-01_rev01.brd	DWG-0384-01_rev01.pdf	DWG-0383-01_rev01.pdf	DWG-0382-01_rev01.pdf	N/A	PCA-0080-01

Chassis Number	Description	Mechanical Assembly	Base Unit Assembly	Other	Sheetmetal Subassembly	CMTS PCAs used
CHS-0002-04	1U CMTS BSR1000	N/A	DWG-0232-01_revF.pdf	DWG-0203-01_revB.pdf	N/A	PCA-0027-03
CHS-0007-01	1U CMTS BSR1000 US	N/A	DWG-0366-01_rev02.pdf	DWG-0203-01_revB.pdf	N/A	PCA-0055-02
CHS-0008-01	1U CMTS BSR1000 Euro	N/A	DWG-0366-01_rev02.pdf	DWG-0203-01_revB.pdf	N/A	PCA-0056-02
CHS-0015-01	14U Redundant 1X4, 50A BSR64K Chassis	DWG-0051-03_rev03.pdf	DWG-0362-01_rev01.pdf	none	SUB-0017-03	PCA-0057-02 + I/O PCA-0058-02 + I/O
CHS-0006-01	14U Redundant 2X8, 60A BSR64K Chassis	TBD	TBD	TBD	TBD	PCA-0045-02 + I/O
CHS-0017-01	BSR 2000, CMTS 2X8 with Ethernet	TBD	TBD	TBD	TBD	PCA-0065-02 + I/O

Company Licenses

NAME	PARTIES
RSA Receipt of Services	River Delta RSA Data Security, Inc.
Software License Agreement, Addendum and Purchase Orders	Packet Technologies phase2
Memorandum of Understanding	River Delta Viasat
Purchase Order #506	River Delta Wind River Systems, Inc.
Purchase Order #107-991604	Packet Technologies, Inc. WindRiver
Emperative, Inc. Relationship Agreement	RiverDelta Networks Emperative, Inc.
Employment Letter w/NDA, Non-compete Agreement, Developments Agreement	RiverDelta Networks, Inc. F. Dennis Periquet
OEM Program License Agreement	RiverDelta Networks Virata Corp.
Employment Letter w/NDA, Non-compete Agreement, Developments Agreement	Packet Technologies, Inc. Jon C.R. Bennett
Employment Letter w/NDA, Non-compete Agreement, Developments Agreement	Packet Technologies, Inc. Swarup Sahoo
Executive Agreement w/Developments Agreement	RiverDelta Networks, Inc. Weidong Chen
Executive Agreement w/ Developments Agreement	RiverDelta Networks, Inc. Zhao Liu
Executive Agreement w/Developments Agreement	RiverDelta Networks, Inc. Doug Wood
Executive Agreement w/Developments Agreement	RiverDelta Networks, Inc. Jeffrey Walker
Executive Agreement w/Developments Agreement	RiverDelta Networks, Inc. Joseph A. Cozzolino
Executive Agreement	Packet Technologies, Inc. Raj K. Duggal

NAME	PARTIES
Executive Agreement w/Developments Agreement	RiverDelta Networks, Inc. Jerry Z.Y. Guo
Employment Letter w/NDA, Non-compete Agreement, Developments Agreement	Packet Technologies, Inc. Robert Kelly
Jacobs Rimell-RiverDelta Networks Co-Marketing Partnership Agreement	RiverDelta Networks, Inc. Jacobs Rimell
Marketing and Referral Agreement	RiverDelta Networks, Inc. Unisphere Networks, Inc.
Manufacturing Services Agreement	RiverDelta Networks, Inc. IEC Electronics Corp.
Letter Agreement	RiverDelta Networks, Inc. ViaSat, Inc.
DRAFT -- ViaSat-RiverDelta Broadband Series Router Term Sheet May 14, 2001	RiverDelta Networks, Inc. ViaSat
RiverDelta Networks, Inc. International Distribution Agreement	RiverDelta Networks, Inc. KabelKON Trading & Consultancy Ltd.
RiverDelta Networks, Inc. International Distribution Agreement	RiverDelta Networks, Inc. GENO Trading s.r.o.
RiverDelta Networks, Inc. International Distribution Agreement	RiverDelta Networks, Inc. Teleste Corp.
RiverDelta Networks, Inc. International Distribution Agreement	RiverDelta Networks, Inc. [template]
RiverDelta Networks, Inc. Distribution Agreement	RiverDelta Networks, Inc.
Employment Offer Letter	RiverDelta Networks, Inc. and Gerard White
Executive Agreement w/ Developments Agreement	RiverDelta Networks, Inc. and Gerard White
Correspondence re Domain Name Registration and Invoices	RiverDelta Networks, Inc.
Receipt relating to Domain Name Payments	RiverDelta Networks, Inc.
Web Address Registration Invoice	RiverDeltaNetworks.org
Web Address Registration Invoice	RiverDeltaNetworks.net

NAME	PARTIES
Web Address Registration Invoice	RiverDeltaNetworks.com
Web Address Registration Invoice	RiverDelta.org
Web Address Registration Confirmation	RiverDeltaNetworks.org
Web Address Registration Confirmation	RiverDeltaNetworks.net
Web Address Registration Confirmation	RiverDeltaNetworks.com
Web Address Registration Confirmation	RiverDelta.org
Statement of Work	RiverDelta Networks, Inc. RSA Security, Inc.
RSA Security Inc. Professional Services Agreement	RiverDelta Networks, Inc. RSA Security, Inc.
Price Quote	RiverDelta Networks, Inc. Insight Electronics, Inc.
Invention Disclosure – A Mechanism to Implement a Highly Available CMTS using a combination of Redundant components, RF and IF Relays	Gerry White
RDN Patent Disclosure – Hierarchical Packet Discard Mechanism	Jon C.R. Bennett
U.S. PTO Transmittal Papers For Data Rate Limiting	Inventor Zhao Liu, et al
U.S. PTO Transmittal Papers For Radio Frequency Communications Redundancy	Gerard White, et al
U.S. PTO Transmittal Papers For Data Packet Discarding	Jon C. R. Bennett
U.S. PTO Transmittal Papers For Packetized Data Discard	Jon C. R. Bennett
PCT General Power of Attorney	RiverDelta Networks Mintz, Levin et al.
Power of Attorney	RiverDelta Networks TIPLO Attorneys-at-Law
Netscape Public License	Netscape Corp.
Project Agreement No. A3A55 Revision A	RiverDelta Networks Agilent Technologies

NAME

PARTIES

Agilent Technologies

