



Portable Product Sheets – Routing Performance

Router Switching Performance in Packets Per Second (PPS)

Numbers are given with 64 byte packet size, IP only, and are only an indication of *raw* switching performance. These are testing numbers, usually with FE to FE, GigE to GigE or POS to POS, no services enabled. As you add ACL's, encryption, compression, etc - performance will decline significantly from the given numbers, unless it is a hardware-assisted platform, such as the ASR 1000, 7600 or 12000, which process QoS, ACL's, and other features in hardware (or when a hardware assist is installed, for instance an AIM-VPN in a 3745 will offload the encryption from the CPU). Every situation is different - please simulate the true environment to get applicable performance values.

Knowing the performance for a specific router platform is not a good indication of how well a specific feature will perform. If a feature is supported in the CEF path, for instance, and we know the feature-free CEF throughput in a specific configuration, then we only know the platform's "never-to-exceed" performance but we do not know the actual performance of any given feature, which will always be less.

All numbers are for IP packets only - no IPX/AT/DEC, etc. - Mbps calculated by pps * 64bytes * 8bits/byte; **except for 12000 (Engines 0, 1, 2, 3 & 5) where these numbers represent the maximum mbps forwarding rates when packets are greater than 64 bytes. Please see inserted comments in this field.**

Table 1. Router Performance Matrix

Platform	Process Switching		Fast/CEF Switching		EOS?
	PPS	Mbps	PPS	Mbps	
801,805	1,000			0.51	15-Apr-07
806			7,000	3.58	30-Apr-04
830			8,500	4.35	5-Jul-06
850			10,000	5.12	No
860			25,000	12.80	No
870			25,000	12.80	No
880			50,000	25.60	No
890			100,000	51.20	No
14xx	600	0.3072	4,000	2.05	31-Aug-00
160x(-R)	600	0.3072	4,000	2.05	28-Feb-03
1701	1,700	0.8704	12,000	6.14	27-Mar-07
1710	1,300	0.6656	7,000	3.58	30-Jul-04
1711-1712	1,700	0.8704	13,500	6.91	27-Mar-07
1720	1,400	0.7168	8,500	4.35	1-Aug-03
1721	1,700	0.8704	12,000	6.14	27-Mar-07
1750	1,400	0.7168	8,500	4.35	31-May-02
1751	1,500	0.768	12,000	6.14	27-Mar-07
1760	1,700	0.8704	16,00	8.19	27-Mar-07
ISR 1801-1812			70,000	35.84	No
ISR 1841			75,000	38.40	No
ISR 1861			146,142	74.82	No
ISR G2 1941			299,000	153.08	No
2500	800	0.4096	4,400	2.25	30-Apr-02
261X	1,500	0.768	15,000	7.68	26-Apr-03



Platform	Process Switching		Fast/CEF Switching		EOS?
	PPS	Mbps	PPS	Mbps	
262X	1,500	0.768	25,000	12.80	26-Apr-03
265X	2,000	1.024	37,000	18.94	26-Apr-03
261X(XM)	1,500	0.768	20,000	10.24	27-Mar-07
262X(XM)	1,500	0.768	30,000	15.36	27-Mar-07
265X(XM)	2,000	1.024	40,000	20.48	27-Mar-07
2691	7,400	3.7888	70,000	35.84	27-Mar-07
ISR 2801	3,000	1.536	90,000	46.08	No
ISR 2811	3,000	1.536	120,000	61.44	No
ISR 2821	11,500	5.888	170,000	87.04	No
ISR 2851	15,000	7.68	220,000	112.64	No
3620	2,000	1.024	20,000 – 40,000	10 - 20	31-Dec-03
ISR G2 2901			327,000	167.42	No
ISR G2 2911			353,000	180.73	No
ISR G2 2921			480,000	245.76	No
ISR G2 2951			580,000	296.96	No
3640/3640A	4,000	2.048	50,000 – 70,000	25.6 – 36	31-Dec-03
3660	12,000	6.144	100 - 120,000	51.2 – 61.4	31-Dec-03
3631	4,000	2.048	50 – 70,000	25.6 – 36	2-Aug-04
3725			100 – 120,000	51.2 – 61.4	27-Mar-07
3745			225 – 250,000	115.2 – 128	27-Mar-07
MC3810	2,000	1.024	8,000	4.10	14-Dec-01
MC3810-V3	3,000	1.536	15,000	7.68	13-Dec-02
ISR 3825	25,000	12.8	350,000	179.20	No
ISR 3845	35,000	17.92	500,000	256.00	No
ISR G2 3925			833,000	426.49	No
ISR G2 3945			982,000	502.78	No
IAD2400	3,000	1.536	15,000	7.68	No
4000	1,800	0.9216	14,000	7.17	10-Jul-98
4500	3,500	1.792	45,000	23.04	25-Nov-00
4700	4,600	2.3552	75,000	38.40	25-Nov-00
7120	13,000	6.656	175,000	89.60	30-Nov-01
7140	20,000	10.24	300,000	153.60	30-Nov-01
7200-NPE100	7,000	3.584	100,000	51.20	30-Apr-00
7200-NPE150	10,000	5.12	150,000	76.80	30-Apr-00
7200-NPE175	9,000	4.608	177,848	91.06	15-Jul-00
7200-NPE200	13,000	6.656	200,000	102.40	1-Jan-02
7200-NPE225	13,000	6.656	233,170	119.38	23-Jul-07
7200-NPE300	20,000	10.24	353,000	180.74	31-Dec-01
7200-NPE400	20,000	10.24	420,000	215.04	No
7200-NPE-G1	79,000	40.448	1,018,000	521.22	No
7200-NPE-G2			2,000,000	1,024.00	No
7200-NSE-1	20,000	10.24	300,000(RP)	153.6	2-Mar-04
7304-NSE-100			3,500,000(PXF) 450,000(RP)	1,792 230.4	31-Mar-08



Platform	Process Switching		Fast/CEF Switching		EOS?
	PPS	Mbps	PPS	Mbps	
7304-NSE-150			3,500,000(PXF) 800,000(RP)	1,792 409.6	No
7304-NPE-G100			1,099,000	562.69	No
7301	79,000	40.448	1,018,000	521.22	No
7401	20,000	10.24	300,000 (Also has PXF)	153.6	30-Dec-04
7000-RP	2,500	1.28	30,000	15.36	31-Jul-97
7500-RSP2	5,000	2.56	220,000	112.64	16-Feb-03
7500-RSP4/4+	8,000	4.096	345,000	176.64	15-Dec-07
7500-RSP8	22,000	11.264	470,000	240.64	15-Dec-07
7500-RSP16	29,000	14.848	530,000	271.36	15-Dec-07
7500-VIP2/40	Punts to RSP ¹		60,000 – 95,000	30.7 – 48.6	30-Apr-04
7500-VIP2/50	Punts to RSP ¹		90,000 – 140,000	46.1 – 71.7	15-May-03
7500-VIP4/50	Punts to RSP ¹		90,000 – 140,000	46.1 – 71.7	15-Dec-07
7500-VIP4/80	Punts to RSP ¹		140,000 – 210,000	71.7 – 107.5	15-Dec-07
7500-VIP6/80	Punts to RSP ¹		140,000 – 219,000	71.7 – 112.1	15-Dec-07
7600-MSFC2(Sup2)	20,000 (500,000 for software-switched CEF)	10.24 (256.00)	30,000,000 for central forwarding of non-DFC traffic - 15,000,000 for central forwarding on non-DFC traffic with classic line cards ²	15,360.00 or 7,680.00	1-Mar-07
7600-MSFC2A(Sup32)			15,000,000 ²	7,680.00	No
7600-MSFC3(Sup720)	20,000 (500,000 for software switched CEF)	10.24 (256.00)	30,000,000 for central forwarding of non-DFC traffic – 15,000,000 for central forwarding on non-DFC traffic with classic line cards ²	15,360.00 or 7,680.00	No
7600-CEF256			15,000,000 per slot ²	7,680.00	No
7600-dCEF256 (6816)			24,000,000 per slot ²	12,288.00	No
7600-dCEF720(6724)			24,000,000 per slot ²	12,288.00	No
7600-dCEF720(67xx)			48,000,000 per slot ²	24,576.00	No
(ASR1002-F)-ESP2.5			4,420,000	2,263.04	No
ASR1000-ESP5			8,840,000	4,526.08	No
ASR1000-ESP10			17,690,000	9,057.28	No
ASR1000-ESP20			25,430,000	13,020.16	No
10000-PRE1			2,800,000 (Also has 2xPXF)	1,433.60	17-Aug-06
10000-PRE2			6,200,000 (Also has a 4xPXF)	3,174.40	1-Jan-10
10000-PRE3			9,500,000 (Also has a 4xPXF)	4,864.00	No
10000-PRE4			10,000,000(Also has a 4xPXF)	5,120.00	No
10720	50,000	25.6	2,000,000 (Also has a 2xPXF)	1,024.00	No
12000 (Engine 0)			400,000	622.00	No
12000 (Engine 1)			700,000	2,500.00	No
12000 (Engine 2)			4,000,000	2,500.00	No
12000 (Engine 3)			4,000,000	2,500.00	No
12000 (Engine 4/4+)			25,000,000	10,000.00	No

¹ "Punts to RSP" means that when a VIP cannot process the packets in a distributed manner (for instance, when doing MLPPP across different PA's instead of keeping the bundles on the same PA), it must push that forwarding decision and packet flow to the RSP. In these cases, use the RSP switching numbers.

² The 7600 only slows centralized forwarding when a classic line card is installed, and then only for flows that must be centrally forwarded. For instance, a system with a Sup720 with two 6748 DFC3A equipped cards has a legacy gigabit switching module installed - the 6148-GE-TX, for instance. Flows going to or originating from that card operate at 15Mpps, but flows going between the 6748's operate at full 48Mpps per slot. Therefore, distributed forwarding is unaffected by the insertion of a legacy card.