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(54) **VIDEO DATA COMPRESSION SYSTEMS**

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(56) **References Cited**

U.S. PATENT DOCUMENTS

3,394,352 A 7/1968 Wernikoff et al.
3,490,690 A 1/1970 Apple et al.
(Continued)

FOREIGN PATENT DOCUMENTS

DE 4127518 2/1992
EP 0 164677 12/1985
(Continued)

OTHER PUBLICATIONS

Defendants' Objections to the Report and Recommendation of
Magistrate Judge (ECF No. 184), filed in *Realtime Data, LLC d/b/a*
IXO v. Action Corporation, et al., Case No. 6:15-cv-00463-RWS-
JDL (E.D. Texas), filed Dec. 15, 2015; 13 pages.

(Continued)

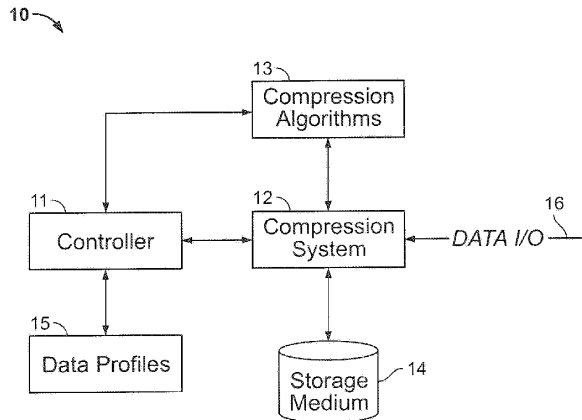
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(57) **ABSTRACT**

A system and method including one or more asymmetric
data compression algorithms is disclosed. A first asymmetric
data compression algorithm of the one or more asymmetric
data compression algorithms compresses data at a higher
data compression rate than a second asymmetric data com-
pression algorithm of the one or more asymmetric data
compression algorithms. The system and method also
include one or more processors that determine one or more
data parameters from one or more data blocks and select one
or more asymmetric data compression algorithms from
among the one or more asymmetric data compression algo-
rithms based upon, at least in part, the determined one or
more data parameters.

29 Claims, 4 Drawing Sheets



HULU LLC

Related U.S. Application Data

<p>No. 14/577,286, filed on Dec. 19, 2014, now abandoned, which is a continuation of application No. 14/134,933, filed on Dec. 19, 2013, now Pat. No. 8,929,442, which is a continuation of application No. 14/033,245, filed on Sep. 20, 2013, now Pat. No. 8,934,535, which is a continuation of application No. 13/154,239, filed on Jun. 6, 2011, now Pat. No. 8,553,759, which is a continuation of application No. 12/123,081, filed on May 19, 2008, now Pat. No. 8,073,047, which is a continuation of application No. 10/076,013, filed on Feb. 13, 2002, now Pat. No. 7,386,046.</p> <p>(60) Provisional application No. 60/268,394, filed on Feb. 13, 2001.</p> <p>(51) Int. Cl. <i>H04N 19/164</i> (2014.01) <i>H04N 19/176</i> (2014.01) <i>H03M 7/30</i> (2006.01)</p> <p>(52) U.S. Cl. CPC <i>H03M 7/6094</i> (2013.01); <i>H04N 19/164</i> (2014.11); <i>H04N 19/176</i> (2014.11)</p> <p>(58) Field of Classification Search CPC H03M 7/3088; H03M 7/6023; H03M 7/6064; G06F 15/7867; G06T 1/60; H04N 19/136; H04N 19/152; H04N 9/8042; H04N 19/164; H04N 19/176; H04N 19/103; H04L 69/04; G11B 20/00007 USPC 375/240, 240.01, 240.02; 341/50, 51, 341/126 See application file for complete search history.</p>	<p>4,870,415 A 9/1989 Van Maren et al. 4,872,009 A 10/1989 Tsukiyama et al. 4,876,541 A 10/1989 Storer 4,888,812 A 12/1989 Dinan et al. 4,890,282 A 12/1989 Lambert et al. 4,897,717 A 1/1990 Hamilton et al. 4,906,991 A 3/1990 Fiala et al. 4,906,995 A 3/1990 Swanson 4,929,946 A 5/1990 O'Brien et al. 4,953,324 A 9/1990 Hermann 4,956,808 A 9/1990 Aakre et al. 4,965,675 A 10/1990 Hori et al. 4,988,998 A 1/1991 O'Brien 5,003,307 A 3/1991 Whiting et al. 5,016,009 A 5/1991 Whiting et al. 5,027,376 A 6/1991 Freidman et al. 5,028,922 A 7/1991 Huang 5,034,914 A 7/1991 Osterlund 5,045,848 A 9/1991 Fascenda 5,045,852 A 9/1991 Mitchell et al. 5,046,027 A 9/1991 Taaffe et al. 5,046,119 A 9/1991 Hoffert et al. 5,049,881 A 9/1991 Gibson et al. 5,079,630 A 1/1992 Golin 5,091,782 A 2/1992 Krause et al. 5,097,261 A 3/1992 Langdon, Jr. et al. 5,103,306 A 4/1992 Weiman 5,109,226 A 4/1992 MacLean, Jr. et al. 5,109,433 A 4/1992 Notenboom 5,109,451 A 4/1992 Aono et al. 5,113,522 A 5/1992 Dinwiddie, Jr. et al. 5,115,309 A 5/1992 Hang 5,121,342 A 6/1992 Szymborski 5,126,739 A 6/1992 Whiting et al. 5,128,963 A 7/1992 Akagiri 5,132,992 A 7/1992 Yurt et al. 5,146,221 A 9/1992 Whiting et al. 5,150,430 A 9/1992 Chu 5,155,484 A 10/1992 Chambers, IV 5,159,336 A 10/1992 Rabin et al. 5,167,034 A 11/1992 MacLean, Jr. et al. 5,175,543 A 12/1992 Lantz 5,179,651 A 1/1993 Taaffe et al. 5,187,793 A 2/1993 Keith et al. 5,191,431 A 3/1993 Hasegawa et al. 5,204,756 A 4/1993 Chevion et al. 5,209,220 A 5/1993 Hiyama et al. 5,212,742 A 5/1993 Normile et al. 5,226,176 A 7/1993 Westaway et al. 5,227,878 A 7/1993 Puri et al. 5,227,893 A 7/1993 Ett 5,231,492 A 7/1993 Dangi et al. 5,237,460 A 8/1993 Miller et al. 5,237,675 A 8/1993 Hannon, Jr. 5,243,341 A 9/1993 Seroussi et al. 5,243,348 A 9/1993 Jackson 5,247,638 A 9/1993 O'Brien et al. 5,247,646 A 9/1993 Osterlund et al. 5,249,053 A 9/1993 Jain 5,263,168 A 11/1993 Toms et al. 5,265,180 A 11/1993 Golin 5,267,333 A 11/1993 Aono 5,270,832 A 12/1993 Balkanski et al. 5,276,898 A 1/1994 Kiel et al. 5,280,600 A 1/1994 Van Maren et al. 5,287,420 A 2/1994 Barrett 5,289,580 A 2/1994 Latif et al. 5,293,379 A 3/1994 Carr 5,293,576 A 3/1994 Mihm, Jr. et al. 5,307,497 A 4/1994 Feigenbaum et al. 5,309,555 A 5/1994 Akins et al. 5,319,682 A 6/1994 Clark 5,331,425 A 7/1994 Ozaki et al. 5,333,212 A 7/1994 Ligtenberg 5,341,440 A 8/1994 Earl et al. 5,347,600 A 9/1994 Barnsley et al. 5,353,132 A 10/1994 Katsuma 5,354,315 A 10/1994 Armstrong 5,355,498 A 10/1994 Provino et al.</p>
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(56) **References Cited**

U.S. PATENT DOCUMENTS

3,560,639 A	2/1971	Centanni
4,021,782 A	5/1977	Hoerning
4,032,893 A	6/1977	Moran
4,054,951 A	10/1977	Jackson et al.
4,127,518 A	11/1978	Coy et al.
4,302,775 A	11/1981	Widergren et al.
4,325,085 A	4/1982	Gooch
4,360,840 A	11/1982	Wolfrun et al.
4,386,416 A	5/1983	Giltner et al.
4,394,774 A	7/1983	Widergren et al.
4,464,650 A	8/1984	Eastman
4,494,108 A	1/1985	Langdon, Jr. et al.
4,499,499 A	2/1985	Brickman et al.
4,558,302 A	12/1985	Welch
4,568,983 A	2/1986	Bobick
4,574,351 A	3/1986	Dang et al.
4,593,324 A	6/1986	Ohkubo et al.
4,626,829 A	12/1986	Hauck
4,646,061 A	2/1987	Bledsoe
4,682,150 A	7/1987	Mathes et al.
4,701,745 A	10/1987	Waterworth
4,729,020 A	3/1988	Schaphorst et al.
4,730,348 A	3/1988	MacCrisken
4,745,559 A	5/1988	Willis et al.
4,748,638 A	5/1988	Freidman et al.
4,750,135 A	6/1988	Boilen
4,754,351 A	6/1988	Wright
4,804,959 A	2/1989	Makansi et al.
4,813,040 A	3/1989	Futato
4,814,746 A	3/1989	Miller et al.
4,862,167 A	8/1989	Copeland, III
4,866,601 A	9/1989	DuLac et al.

(56)	References Cited				
	U.S. PATENT DOCUMENTS				
5,357,614 A	10/1994	Pattisam et al.	5,581,715 A	12/1996	Verinsky et al.
5,367,629 A	11/1994	Chu et al.	5,583,500 A	12/1996	Allen et al.
5,373,290 A	12/1994	Lempel et al.	5,586,264 A	12/1996	Belknap et al.
5,374,916 A	12/1994	Chu	5,586,285 A	12/1996	Hasbun et al.
5,379,036 A	1/1995	Storer	5,590,306 A	12/1996	Watanabe et al.
5,379,351 A	1/1995	Fandrianto et al.	5,590,317 A	12/1996	Iguchi et al.
5,379,356 A	1/1995	Purcell et al.	5,596,674 A	1/1997	Bhandari et al.
5,379,757 A	1/1995	Hiyama et al.	5,598,388 A	1/1997	Van Maren et al.
5,381,145 A	1/1995	Allen et al.	5,602,764 A	2/1997	Eskandari-Gharnin et al.
5,389,922 A	2/1995	Seroussi et al.	5,604,824 A	2/1997	Chui et al.
5,394,534 A	2/1995	Kulakowski et al.	5,606,706 A	2/1997	Takamoto et al.
5,396,228 A	3/1995	Garahi	5,610,657 A	3/1997	Zhang
5,400,401 A	3/1995	Wasilewski et al.	5,611,024 A	3/1997	Campbell et al.
5,402,146 A	3/1995	Rodriguez et al.	5,612,788 A	3/1997	Stone
5,403,639 A	4/1995	Belsan et al.	5,613,069 A	3/1997	Walker
5,406,278 A	4/1995	Graybill et al.	5,615,017 A	3/1997	Choi
5,406,279 A	4/1995	Anderson et al.	5,615,287 A	3/1997	Fu et al.
5,408,542 A	4/1995	Callahan	5,619,995 A	4/1997	Lobodzinski
5,410,671 A	4/1995	Elgamal et al.	5,621,820 A	4/1997	Rynderman et al.
5,412,384 A	5/1995	Chang et al.	5,623,483 A	4/1997	Agrawal et al.
5,414,850 A	5/1995	Whiting	5,623,623 A	4/1997	Kim et al.
5,420,639 A	5/1995	Perkins	5,623,701 A	4/1997	Bakke et al.
5,434,983 A	7/1995	Yaso et al.	5,627,534 A	5/1997	Craft
5,437,020 A	7/1995	Wells et al.	5,627,995 A	5/1997	Miller et al.
5,452,287 A	9/1995	Dicecco et al.	5,629,732 A	5/1997	Moskowitz et al.
5,454,079 A	9/1995	Roper et al.	5,630,092 A	5/1997	Carreiro et al.
5,454,107 A	9/1995	Lehman et al.	5,635,632 A	6/1997	Fay et al.
5,455,576 A	10/1995	Clark, II et al.	5,635,932 A	6/1997	Shinagawa et al.
5,455,578 A	10/1995	Bhandari	5,638,498 A	6/1997	Tyler et al.
5,455,680 A	10/1995	Shin	5,640,158 A	6/1997	Okayama et al.
5,461,679 A	10/1995	Normile et al.	5,642,506 A	6/1997	Lee
5,463,390 A	10/1995	Whiting et al.	5,649,032 A	7/1997	Burt et al.
5,467,087 A	11/1995	Chu	5,652,795 A	7/1997	Dillon et al.
5,467,134 A	11/1995	Laney et al.	5,652,857 A	7/1997	Shimoi et al.
5,471,206 A	11/1995	Allen et al.	5,652,917 A	7/1997	Maupin et al.
5,475,388 A	12/1995	Gormish et al.	5,654,703 A	8/1997	Clark, II
5,479,210 A	12/1995	Cawley et al.	5,655,138 A	8/1997	Kikinis
5,479,587 A	12/1995	Campbell et al.	5,664,226 A	9/1997	Czako et al.
5,479,633 A	12/1995	Wells et al.	5,666,560 A	9/1997	Moertl et al.
5,479,638 A	12/1995	Assar et al.	5,668,737 A	9/1997	Iler
5,483,470 A	1/1996	Alur et al.	5,671,355 A	9/1997	Collins
5,486,826 A	1/1996	Remillard	5,671,389 A	9/1997	Saliba
5,488,364 A	1/1996	Cole	5,671,413 A	9/1997	Shipman et al.
5,488,365 A	1/1996	Seroussi et al.	5,673,370 A	9/1997	Laney
5,495,244 A	2/1996	Jeong et al.	5,675,333 A	10/1997	Boursier et al.
5,504,842 A	4/1996	Gentile	5,675,789 A	10/1997	Ishii et al.
5,506,844 A	4/1996	Rao	5,684,478 A	11/1997	Panaoussis
5,506,872 A	4/1996	Mohler	5,686,916 A	11/1997	Bakhmutsky
5,506,944 A	4/1996	Gentile	5,692,159 A	11/1997	Shand
5,521,940 A	5/1996	Lane et al.	5,694,619 A	12/1997	Konno
5,524,272 A	6/1996	Podowski et al.	5,696,927 A	12/1997	MacDonald et al.
5,528,628 A	6/1996	Park et al.	5,703,793 A	12/1997	Wise et al.
5,530,845 A	6/1996	Hiatt et al.	5,708,511 A	1/1998	Gandhi et al.
5,533,051 A	7/1996	James	5,710,562 A	1/1998	Gormish et al.
5,535,311 A	7/1996	Zimmerman	5,715,477 A	2/1998	Kikinis
5,535,356 A	7/1996	Kim et al.	5,717,393 A	2/1998	Nakano et al.
5,535,369 A	7/1996	Wells et al.	5,717,394 A	2/1998	Schwartz et al.
5,537,658 A	7/1996	Bakke et al.	5,719,862 A	2/1998	Lee et al.
5,539,865 A	7/1996	Gentile	5,721,958 A	2/1998	Kikinis
5,542,031 A	7/1996	Douglass et al.	5,724,475 A	3/1998	Kirsten
5,544,290 A	8/1996	Gentile	5,729,228 A	3/1998	Franaszek et al.
5,546,395 A	8/1996	Sharma et al.	5,740,395 A	4/1998	Wells et al.
5,546,475 A	8/1996	Bolle et al.	5,742,773 A	4/1998	Blomfield-Brown et al.
5,553,160 A	9/1996	Dawson	5,748,122 A	5/1998	Shinagawa et al.
5,555,377 A	9/1996	Christensen et al.	5,748,904 A	5/1998	Huang et al.
5,557,551 A	9/1996	Craft	5,757,852 A	5/1998	Jericovic et al.
5,557,668 A	9/1996	Brady	5,764,774 A	6/1998	Liu
5,557,749 A	9/1996	Norris	5,765,027 A	6/1998	Wang et al.
5,561,421 A	10/1996	Smith et al.	5,767,898 A	6/1998	Urano et al.
5,561,824 A	10/1996	Carreiro et al.	5,768,445 A	6/1998	Troeller et al.
5,563,961 A	10/1996	Rynderman et al.	5,768,525 A	6/1998	Kralowetz et al.
5,574,952 A	11/1996	Brady et al.	5,771,340 A	6/1998	Nakazato et al.
5,574,953 A	11/1996	Rust et al.	5,771,354 A	6/1998	Crawford
5,576,953 A	11/1996	Hugentobler	5,774,715 A	6/1998	Madany et al.
5,577,248 A	11/1996	Chambers, IV	5,778,411 A	7/1998	DeMoss et al.
			5,781,767 A	7/1998	Inoue et al.
			5,784,572 A	7/1998	Rostoker et al.
			5,784,631 A	7/1998	Wise
			5,787,487 A	7/1998	Hashimoto et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

5,794,229 A	8/1998	French et al.	5,968,149 A	10/1999	Jaquette et al.
5,796,864 A	8/1998	Callahan	5,969,927 A	10/1999	Schirmer et al.
5,799,110 A	8/1998	Israelsen et al.	5,973,630 A	10/1999	Heath
5,805,834 A	9/1998	McKinley et al.	5,974,235 A	10/1999	Nunally et al.
5,805,932 A	9/1998	Kawashima et al.	5,974,387 A	10/1999	Kageyama et al.
5,807,036 A	9/1998	Lostlen	5,974,471 A	10/1999	Belt
5,808,660 A	9/1998	Sekine et al.	5,978,483 A	11/1999	Thompson, Jr. et al.
5,809,176 A	9/1998	Yajima	5,982,360 A	11/1999	Wu et al.
5,809,299 A	9/1998	Cloutier et al.	5,982,723 A	11/1999	Kamatani
5,809,337 A	9/1998	Hannah et al.	5,982,937 A	11/1999	Accad
5,812,195 A	9/1998	Zhang	5,987,022 A	11/1999	Geiger et al.
5,812,789 A	9/1998	Diaz et al.	5,987,432 A	11/1999	Zusman et al.
5,812,883 A	9/1998	Rao	5,987,590 A	11/1999	Wing So
5,815,718 A	9/1998	Tock	5,990,810 A	11/1999	Williams
5,818,368 A	10/1998	Langley	5,990,884 A	11/1999	Douma et al.
5,818,369 A	10/1998	Withers	5,991,515 A	11/1999	Fall et al.
5,818,530 A	10/1998	Canfield et al.	5,996,033 A	11/1999	Chiu-Hao
5,819,215 A	10/1998	Dobson et al.	6,000,009 A	12/1999	Brady
5,822,781 A	10/1998	Wells et al.	6,002,411 A	12/1999	Dye
5,825,424 A	10/1998	Canfield et al.	6,003,115 A	12/1999	Spear et al.
5,825,830 A	10/1998	Kopf	6,008,743 A	12/1999	Jaquette
5,832,037 A	11/1998	Park	6,009,491 A	12/1999	Roppel et al.
5,832,126 A	11/1998	Tanaka	6,011,901 A	1/2000	Kirsten
5,832,443 A	11/1998	Kolesnik et al.	6,014,694 A	1/2000	Aharoni et al.
5,835,788 A	11/1998	Blumer et al.	6,021,433 A	2/2000	Payne
5,836,003 A	11/1998	Sadeh	6,023,233 A	2/2000	Craven et al.
5,838,821 A	11/1998	Matsubara et al.	6,023,755 A	2/2000	Casselman
5,838,927 A	11/1998	Gillon	6,026,217 A	2/2000	Adiletta
5,838,996 A	11/1998	deCarmo	6,028,725 A	2/2000	Blumenau
5,839,100 A	11/1998	Wegener	6,031,939 A	2/2000	Gilbert et al.
5,841,979 A	11/1998	Schulhof et al.	6,032,148 A	2/2000	Wilkes
5,847,762 A	12/1998	Canfield et al.	6,032,197 A	2/2000	Birdwell et al.
5,850,565 A	12/1998	Wightman	6,038,346 A	3/2000	Ratnakar
5,856,797 A	1/1999	Kawauchi	6,057,790 A	5/2000	Igata et al.
5,860,083 A	1/1999	Sukegawa	6,058,459 A	5/2000	Owen et al.
5,861,824 A	1/1999	Ryu et al.	6,061,398 A	5/2000	Satoh et al.
5,861,920 A	1/1999	Mead et al.	6,061,473 A	5/2000	Chen et al.
5,864,342 A	1/1999	Kajiya et al.	6,065,094 A	5/2000	Akiyama
5,864,678 A	1/1999	Riddle	6,070,179 A	5/2000	Craft
5,867,114 A	2/1999	Barbir	6,073,232 A	6/2000	Kroeker et al.
5,867,167 A	2/1999	Deering	6,075,470 A	6/2000	Little et al.
5,867,602 A	2/1999	Zandi et al.	6,078,541 A	6/2000	Kitagawa et al.
5,870,036 A	2/1999	Franaszek et al.	6,078,958 A	6/2000	Echeita et al.
5,870,087 A	2/1999	Chau	6,091,777 A	7/2000	Guetz et al.
5,872,530 A	2/1999	Domyo et al.	6,092,071 A	7/2000	Bolan et al.
5,874,907 A	2/1999	Craft	6,092,123 A	7/2000	Steffan et al.
5,881,104 A	3/1999	Akahane	6,094,634 A	7/2000	Yahagi et al.
5,883,975 A	3/1999	Narita et al.	6,097,520 A	8/2000	Kadnier
5,884,269 A	3/1999	Cellier et al.	6,097,845 A	8/2000	Ng et al.
5,886,655 A	3/1999	Rust	6,098,114 A	8/2000	McDonald et al.
5,887,165 A	3/1999	Martel et al.	6,104,389 A	8/2000	Ando
5,889,961 A	3/1999	Dobbek	6,105,130 A	8/2000	Wu et al.
5,892,847 A	4/1999	Johnson	6,115,384 A	9/2000	Parzych
5,901,278 A	5/1999	Kurihara et al.	6,121,903 A	9/2000	Kalkstein
5,907,801 A	5/1999	Albert et al.	6,128,412 A	10/2000	Satoh
5,909,557 A	6/1999	Betker et al.	6,134,631 A	10/2000	Jennings, III
5,909,559 A	6/1999	So	6,141,053 A	10/2000	Saukkonen
5,915,079 A	6/1999	Vondran, Jr. et al.	6,145,020 A	11/2000	Barnett
5,917,438 A	6/1999	Ando	6,145,069 A	11/2000	Dye
5,918,068 A	6/1999	Shafe	6,158,000 A	12/2000	Collins
5,918,225 A	6/1999	White et al.	6,169,241 B1	1/2001	Shimizu
5,920,326 A	7/1999	Rentschler et al.	6,169,499 B1	1/2001	Cooper
5,923,860 A	7/1999	Olarig	6,170,007 B1	1/2001	Venkatraman et al.
5,930,358 A	7/1999	Rao	6,170,047 B1	1/2001	Dye
5,936,616 A	8/1999	Torborg, Jr. et al.	6,170,049 B1	1/2001	So
5,938,737 A	8/1999	Smallcomb et al.	6,172,936 B1	1/2001	Kitazaki
5,943,692 A	8/1999	Marberg	6,173,381 B1	1/2001	Dye
5,945,933 A	8/1999	Kalkstein	6,175,650 B1	1/2001	Sindhu et al.
5,949,355 A	9/1999	Panaoussis	6,175,856 B1	1/2001	Riddle
5,949,968 A	9/1999	Gentile	6,182,125 B1	1/2001	Borella et al.
5,951,623 A	9/1999	Reynar et al.	6,185,625 B1	2/2001	Tso et al.
5,955,976 A	9/1999	Heath	6,185,659 B1	2/2001	Millillo et al.
5,956,490 A	9/1999	Buchholz et al.	6,192,082 B1	2/2001	Moriarty et al.
5,960,465 A	9/1999	Adams	6,192,155 B1	2/2001	Fan
5,964,842 A	10/1999	Packard	6,195,024 B1	2/2001	Fallon
			6,195,125 B1	2/2001	Udagawa et al.
			6,195,391 B1	2/2001	Hancock et al.
			6,195,465 B1	2/2001	Zandi et al.
			6,198,842 B1	3/2001	Yeo

(56)	References Cited					
	U.S. PATENT DOCUMENTS					
6,198,850	B1	3/2001	Banton	6,661,839	B1 12/2003	Ishida et al.
6,208,273	B1	3/2001	Dye et al.	6,661,845	B1 12/2003	Herath
6,215,904	B1	4/2001	Lavellee	6,704,840	B2 3/2004	Nalawadi et al.
6,215,983	B1	4/2001	Dogan et al.	6,708,220	B1 3/2004	Olin
6,216,157	B1	4/2001	Vishwanath et al.	6,711,709	B1 3/2004	York
6,219,754	B1	4/2001	Belt et al.	6,717,534	B2 4/2004	Yokose
6,222,886	B1	4/2001	Yogeshwar	6,723,225	B2 4/2004	Scheps
6,225,922	B1	5/2001	Norton	6,731,814	B2 5/2004	Zeck et al.
6,226,667	B1	5/2001	Matthews et al.	6,735,195	B1 5/2004	Mehta
6,226,740	B1	5/2001	Iga	6,744,926	B1 6/2004	Nishigaki
6,230,223	B1	5/2001	Olarig	6,745,282	B2 6/2004	Okada et al.
6,233,017	B1	5/2001	Chaddha	6,748,457	B2 6/2004	Fallon et al.
6,237,054	B1	5/2001	Freitag, Jr.	6,756,922	B2 6/2004	Ossia
6,243,829	B1	6/2001	Chan	6,768,749	B1 7/2004	Osler et al.
6,253,264	B1	6/2001	Sebastian	6,792,151	B1 9/2004	Barnes et al.
6,257,693	B1	7/2001	Miller et al.	6,810,434	B2 10/2004	Muthujumaraswathy et al.
6,272,178	B1	8/2001	Niewegowski et al.	6,813,689	B2 11/2004	Baxter, III
6,272,627	B1	8/2001	Mann	6,819,271	B2 11/2004	Geiger et al.
6,272,628	B1	8/2001	Aguilar et al.	6,822,589	B1 11/2004	Dye et al.
6,282,641	B1	8/2001	Christensen	6,856,651	B2 2/2005	Singh
6,285,458	B1	9/2001	Yada	6,862,278	B1 3/2005	Chang et al.
6,298,408	B1	10/2001	Park	6,868,500	B1 3/2005	Kutz et al.
6,308,311	B1	10/2001	Carmichael et al.	6,879,266	B1 4/2005	Dye et al.
6,309,424	B1	10/2001	Fallon	6,885,316	B2 4/2005	Mehring
6,310,563	B1	10/2001	Har et al.	6,885,319	B2 4/2005	Geiger et al.
6,317,714	B1	11/2001	Del Castillo et al.	6,888,893	B2 5/2005	Li et al.
6,317,818	B1	11/2001	Zwiegincew et al.	6,909,383	B2 6/2005	Shokrollahi et al.
6,330,622	B1	12/2001	Shaefer	6,909,745	B1 6/2005	Puri et al.
6,333,745	B1	12/2001	Shimomura et al.	6,938,073	B1 8/2005	Mendhekar et al.
6,336,153	B1	1/2002	Izumida et al.	6,944,740	B2 9/2005	Abali et al.
6,345,307	B1	2/2002	Booth	6,952,409	B2 10/2005	Jolitz
6,356,589	B1	3/2002	Gebler et al.	6,959,005	B1 10/2005	Osler et al.
6,356,937	B1	3/2002	Montville et al.	6,959,110	B1 10/2005	Danskin et al.
6,370,631	B1	4/2002	Dye	6,959,359	B1 10/2005	Suzuki et al.
6,374,353	B1	4/2002	Settsu et al.	6,963,608	B1 11/2005	Wu
6,388,584	B1	5/2002	Dorward et al.	6,990,247	B2 1/2006	Schwartz
6,392,567	B2	5/2002	Satoh	6,993,597	B2 1/2006	Nakagawa et al.
6,404,919	B1	6/2002	Nishigaki et al.	7,007,099	B1 2/2006	Donati et al.
6,404,931	B1	6/2002	Chen et al.	7,024,460	B2 4/2006	Koopmas
6,421,387	B1	7/2002	Rhee	7,050,639	B1 5/2006	Barnes et al.
6,434,168	B1	8/2002	Kari	7,054,493	B2 5/2006	Schwartz
6,434,695	B1	8/2002	Esfahani et al.	7,069,342	B1 6/2006	Biederman
6,442,659	B1	8/2002	Blumenau	7,079,051	B2 7/2006	Storer et al.
6,449,658	B1	9/2002	Lafe et al.	7,089,391	B2 8/2006	Geiger et al.
6,449,682	B1	9/2002	Toorians	7,096,481	B1 8/2006	Forecast et al.
6,452,602	B1	9/2002	Morein	7,102,544	B1 9/2006	Liu
6,452,933	B1	9/2002	Duffield et al.	7,127,518	B2 10/2006	Vange et al.
6,459,429	B1	10/2002	Deering	7,129,860	B2 10/2006	Alvarez, II
6,463,509	B1	10/2002	Teoman et al.	7,130,913	B2 10/2006	Fallon
6,487,640	B1	11/2002	Lipasti	7,161,506	B2 1/2007	Fallon
6,489,902	B2	12/2002	Heath	7,181,608	B2 2/2007	Fallon et al.
6,505,239	B1	1/2003	Kobata	7,190,284	B1 3/2007	Dye et al.
6,513,113	B1	1/2003	Kobayashi	7,245,636	B1 7/2007	Hans et al.
6,523,102	B1	2/2003	Dye et al.	7,319,667	B1 1/2008	Biederman
6,526,174	B1	2/2003	Graffagnino	7,321,937	B2 1/2008	Fallon
6,529,633	B1	3/2003	Easwar et al.	RE40,092	E 2/2008	Kang
6,532,121	B1	3/2003	Rust et al.	7,327,287	B2 2/2008	Martinian et al.
6,539,438	B1	3/2003	Ledzius et al.	7,330,912	B1 2/2008	Fox et al.
6,539,456	B2	3/2003	Stewart	7,352,300	B2 4/2008	Fallon
6,542,644	B1	4/2003	Satoh	7,358,867	B2 4/2008	Fallon
6,577,254	B2	6/2003	Rasmussen	7,376,772	B2 5/2008	Fallon
6,590,609	B1	7/2003	Kitade et al.	7,378,992	B2 5/2008	Fallon
6,597,812	B1	7/2003	Fallon et al.	7,386,046	B2 6/2008	Fallon et al.
6,601,104	B1	7/2003	Fallon	7,395,345	B2 7/2008	Fallon
6,604,040	B2	8/2003	Kawasaki et al.	7,400,274	B2 7/2008	Fallon et al.
6,604,158	B1	8/2003	Fallon	7,415,530	B2 8/2008	Fallon
6,606,040	B2	8/2003	Abdat	7,417,568	B2 8/2008	Fallon et al.
6,606,413	B1	8/2003	Zeineh	7,496,586	B1 2/2009	Bonwick et al.
6,609,223	B1	8/2003	Wolfgang	7,548,657	B2 6/2009	Deaven
6,618,728	B1	9/2003	Rail	7,552,069	B2 6/2009	Kepecs
6,624,761	B2	9/2003	Fallon	7,565,441	B2 7/2009	Romanik et al.
6,633,244	B2	10/2003	Avery	7,711,938	B2 5/2010	Wise et al.
6,633,968	B2	10/2003	Zwiegincew et al.	7,714,747	B2 5/2010	Fallon
6,650,261	B2	11/2003	Nelson et al.	7,777,651	B2 8/2010	Fallon et al.
6,658,492	B1	12/2003	Kawahara et al.	8,004,431	B2 8/2011	Reznik
				8,054,879	B2 11/2011	Fallon et al.
				8,073,047	B2 12/2011	Fallon et al.
				8,090,936	B2 1/2012	Fallon et al.
				8,112,619	B2 2/2012	Fallon et al.

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