

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte PAUL F. STRUHSAKER,
MICHAEL S. ECKERT, KIRK J. GRIFFIN,
JAMES S. DENTON and GREGORY L. MCGEE

Appeal 2008-0317
Application 09/839,509
Technology Center 2600

Decided: August 29, 2008

Before MAHSHID D. SAADAT, CARLA M. KRIVAK,
and KEVIN F. TURNER, *Administrative Patent Judges*.

SAADAT, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's Final Rejection of claims 1-20, which are all of the claims pending in this application. We have jurisdiction under 35 U.S.C. § 6(b).

We reverse.

STATEMENT OF THE CASE

Appellants' invention relates to a backplane architecture for communication devices, which includes a two tiered traffic and switching architecture capable of processing data at two different traffic rates (Spec. 14). Appellants provide for a backplane comprising a low tier that is capable of aggregate rates of up to approximately two gigabits per second and a high tier that is capable of aggregate rates of up to approximately twenty gigabits per second (Spec. 14-15).

Independent Claims 1 and 10 are representative and read as follows:

1. For use in association with devices such as processors and modems used in wireless and wireline access systems, a backplane comprising:

a low tier that comprises a cell-based bus capable of aggregate traffic rates of up to approximately two gigabits per second; and

a high tier that comprises one or more serial links capable of aggregate traffic rates of up to approximately twenty gigabits per second.

10. For use in association with devices such as processors and modems used in wireless and wireline access systems, a backplane comprising:

a high tier that comprises one or more serial links capable of aggregate traffic rates of up to approximately twenty gigabits per second.

The Examiner relies on the following prior art in rejecting the claims:

Pajowski	US 5,355,090	Oct. 11, 1994
Panzarella	US 5,416,776	May 16, 1995

Lentz	US 6,047,348	Apr. 4, 2000
Dove	US 6,091,729	Jul. 18, 2000
Chui	US 6,512,769 B1	Jan. 28, 2003 (filed Jun. 3, 1998)
Tabu	US 6,560,219 B1	May 6, 2003 (filed Oct. 16, 1997)
Manchester	US 6,760,327 B1	Jul. 6, 2004 (filed Dec. 1, 1999)

Claims 10-13 and 17 stand rejection under 35 U.S.C. § 102(e) as being anticipated by Dove.

Claims 1-4, 7, 8, and 20 stand rejected under 35 U.S.C. § 103(a) based upon the teachings of Manchester and Tabu.

Claim 5 stands rejected under 35 U.S.C. § 103(a) based upon the teachings of Manchester and Tabu and further in view of Chui.

Claim 6 stands rejected under 35 U.S.C. § 103(a) based upon the teachings of Manchester and Tabu and further in view of Lentz.

Claim 9 stands rejected under 35 U.S.C. § 103(a) based upon the teachings of Manchester and Tabu and further in view of Pajowski.

Claims 14-16 stand rejected under 35 U.S.C. § 103(a) based upon the teachings of Dove.

Claims 18 and 19 stand rejected under 35 U.S.C. § 103(a) based upon the teachings of Manchester and Tabu and further in view of Panzarella.

Rather than reiterate the opposing arguments, reference is made to the Briefs and the Answer for the respective positions of Appellants and the Examiner. Only those arguments actually made by Appellants have been considered in this decision. Arguments which Appellants did not make in

the Briefs have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii).

ISSUES

1. Under 35 U.S.C § 102(e), with respect to appealed claims 10-13 and 17, does Dove anticipate the claimed subject matter by teaching all of the claimed limitations?

2. Under 35 U.S.C § 103(a), with respect to appealed claims 1-4, 7, 8, and 20, would the ordinarily skilled artisan have found it obvious to modify Manchester with Tabu to render the claimed invention unpatentable?

3. Under 35 U.S.C § 103(a), with respect to appealed claims 5, 6, 9, 18, and 19, would one of ordinary skill in the art at the time of the invention have found it obvious to combine Manchester and Tabu with either Chui, Lentz, Pajowski, or Panzarella to render the claimed invention unpatentable?

4. Under 35 U.S.C § 103(a), with respect to appealed claims 14-16, would the ordinarily skilled artisan have found it obvious to modify Dove to render the claimed invention unpatentable?

FINDINGS OF FACT

The following findings of fact (FF) are relevant to the issue involved in the appeal.

Dove

1. Dove relates to high speed data transfer using a cell bus, which reduces the number of conductors required to transfer data (col. 2, ll. 25-27).

2. As depicted in Figure 2, for 650 signals transferred, a cell bus of eight bits requires a maximum cell bus rate (e.g., clocking rate) of 100 megahertz MHz) to support an aggregate bandwidth of a switching fabric of up to 20 Gbps. The cell bus, which transfers data on the backplane of a telecommunications switching fabric, minimizes the number of conductors required. (Col. 4, ll. 24-30).

3. In one embodiment, the broadband fiber bank 210 contains an ATM switching function with capacities of 5 Gbps, 10 Gbps, and 20 Gbps. (Col. 5, ll. 1-19).

4. The switching fabric 260 of the cell routing unit (CRU) 220 includes: a minimum of 5 Gbps of aggregate bandwidth; cell based flow control both upstream and downstream; operation with the same transmit and receive cell clock and cell sync timing on all optical line units 230. The backplane and corresponding cell bus permit multiple implementations for the cell switching fabric 260 on the CRU 220. In one embodiment, the CRU 220 supports: an S Gbps switching fabric with 8 ECR-12 ports; a 10 Gbps switching fabric with 16 ECR-12 ports; and a 20 Gbps fabric with ECR-12 transfer rates to each OLU. (Col. 5, ll. 24-34).

5. For this embodiment, the optical line units 230 are grouped into 8 groups of 4 cards with each group sharing a logical cell bus (See backplane of Fig. 4). For the broadband fiber bank embodiments, the CRU 220 and fiber bank interface unit (AFIU) 240 support 32 cell bus interfaces. When operating at ECR-12 rate, the cell bus protocol provides for flexible sharing of the ECR-12 bandwidth over the four corresponding optical line unit cards. When operating in the shared mode, cell routing is based on four

bits in the cell header Generic Flow Control (“GFC”) field (See Fig. 7) or an additional routing tag. (Col. 6, ll. 10-19).

6. For the cell bus embodiment shown in Fig. 5, the cell bus data path width is byte wide and symmetrical (i.e., “transmit data “Tx.sub.__Data” and receive data “Rx.sub.__Data” on transported [sic] the data lines 550”). (Col. 7, ll. 47-50).

Manchester

7. The rate adjustable backplane of Manchester includes a high-speed connector that is adapted to receive a mating connector of the line card 40 which may include a low-speed and/or a high-speed connector for communicating with the switch core 44 over the low and/or high speed busses of the backplane 46. In one embodiment, the rate of one or more high-speed links may be individually set by each line card through communications with the switch core 44 over the low-speed link. (Col. 7, ll. 44-56).

8. The high-speed connector is adapted to receive a mating connector of the line card 40 to establish a high-speed link between line card 40 and the switch core 44. Thus, each line card 40 may include a low-speed and/or a high-speed connector for communicating with the switch core 44 over the low and/or high speed busses of the backplane 46. (Col. 7, ll. 43-57).

9. Figure 3 illustrates details of the switch core 44 and the rate adjustable backplane 46 of the integrated access device 14 in accordance with one embodiment of the present invention. In this embodiment, switch functionality in the switch core 44 is distributed between a standard switch

card and an optional high-capacity switch card that are both connectable to each of the line cards 40 over the rate adjustable backplane 46. (Col. 7, ll. 58-65).

Tabu

10. Figure 7 shows a structure of an exchange system including a large unit 1000 that is connected with a plurality of medium units 2000 and each medium unit is connected with a plurality of small units 3000. The large unit 1000 has a cell switch 1100 having a switching rate, for example, of 20 Gbps. (Col. 9, ll. 43-56).

11. The medium unit 2000 has a cell switch 2100 having a switching rate, for example, of 2 Gbps and accommodates a plurality of transmission lines via the small unit interface 2300. (Col. 9, l. 66 to col. 10, l. 2).

PRINCIPLES OF LAW

1. Anticipation

In rejecting claims under 35 U.S.C. § 102, “[a] single prior art reference that discloses, either expressly or inherently, each limitation of a claim invalidates that claim by anticipation.” *Perricone v. Medicis Pharmaceutical Corp.*, 432 F.3d 1368, 1375-76 (Fed. Cir. 2005), citing *Minn. Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc.*, 976 F.2d 1559, 1565 (Fed. Cir. 1992). *See also In re Paulsen*, 30 F.3d 1475, 1478-79 (Fed. Cir. 1994). “Anticipation of a patent claim requires a finding that the claim at issue ‘reads on’ a prior art reference.” *Atlas Powder Co. v. IRECO, Inc.*, 190 F.3d 1342, 1346 (Fed Cir. 1999) (“In other words, if

granting patent protection on the disputed claim would allow the patentee to exclude the public from practicing the prior art, then that claim is anticipated, regardless of whether it also covers subject matter not in the prior art.”) (internal citations omitted).

2. *Obviousness*

The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art. *See In re Kahn*, 441 F.3d 977, 987-88 (Fed. Cir. 2006), *In re Young*, 927 F.2d 588, 591 (Fed. Cir. 1991) and *In re Keller*, 642 F.2d 413, 425 (CCPA 1981).

The Examiner can satisfy this burden by showing some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *KSR Int’l. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007) (*citing In re Kahn*, 441 F.3d at 988 (Fed. Cir. 2006)).

ANALYSIS

35 U.S.C. § 102 Rejection

As described above (FF 1-6), the portions of Dove the Examiner relies on for teaching the claimed backplane including a high tier comprising one or more serial links (Ans. 13), fail to specify that the signal lines are serial. As argued by Appellants (App. Br. 11-12), the cell bus of Dove transmits byte wide instead of “bit wide” and, therefore, does not comprise a “serial link” (FF 6).

We also disagree with the Examiner’s interpretation (Ans. 13) of how the data link 550 shown in Figure 5 of Dove transmits data “in serial, sequential order, or one after another.” As argued by Appellants (Reply Br.

5), the term “serial link” requires data transmission over a single conductor, one bit at a time. Dove’s data link transmits data using a path that is byte wide (FF 6) and, contrary to the Examiner’s assertion (Ans. 13), has no functionality that may be similar to “serial” transmission. While parallel transmission of data may include multiple bits of data, such transmission involves a completely different protocol that requires more than a choice of software or a simple substitution.

In view of the analysis above, we find that the Examiner has not shown that Dove prima facie anticipates claim 10 as the reference fails to teach all the recited features. We therefore, do not sustain the 35 U.S.C. § 102(e) rejection of claim 10, as well as claims 11-13 and 17 dependent thereon, as being anticipated by Dove.

35 U.S.C. § 103 Rejections

With respect to the rejection of claims 1-4, 7, 8, and 20 over the combined teachings of Manchester and Tabu, Appellants contend that Manchester discloses a structure that is the opposite of the claimed backplane such that the cell-based bus of Manchester has the higher speed while the serial bus of Manchester provides a slower connection (App. Br. 15). Appellants further argue that while Tabu mentions switching rates of 2 and 20 Gbps, the reference includes no teaching or suggestion that the switches include both a cell bus and serial link (*id.*).

The Examiner argues that the aggregate traffic rates disclosed by Tabu further define the speed of the low tier and the high tier parts of the backplane disclosed by Manchester and therefore, render the claims obvious

(Ans. 18-20). The Examiner further asserts that the term “capable” in claim 1 does not require that the low tier and the high tier actually have the recited traffic rates, but makes such rates merely optional (Ans. 20-21).

Appellants respond by asserting that the serial link mentioned in Manchester is in the low tier low-speed bus while Tabu is silent regarding using the disclosed switching rates for serial links (Reply Br. 7). Appellants further argue that the recitation of “capable of aggregate traffic rates” in claim 1 is not optional and imposes affirmative conditions related to the traffic rates for each of the claimed serial links and the cell-based bus (Reply Br. 7-8).

We agree with Appellants that the recited traffic rates are not optional and their addition to the disclosure of Manchester results in a faster low tier bus and a slower high tier serial link (FF 7-8). While the recited traffic rates are mentioned in Tabu (FF 10-11), we also agree with Appellants’ argument, *supra*, that the result of combining the applied references would be a fast low tier and a slow high tier bus, which is the opposite of the claim requirements. Additionally, we agree with Appellants’ reasoning that combining Manchester with Tabu is not based on any stated incentive or reasoning for switching the traffic rate of the lower tier bus and the higher tier bus, in the manner recited in claim 1.

CONCLUSION

On the record before us, we find that the Examiner fails to make a *prima facie* case that Dove anticipates claim 10 and therefore, in view of our analysis above, the 35 U.S.C. § 102 rejection of claims 10-13 and 17 as

anticipated by Dove cannot be sustained. Additionally, under the facts we have here and the arguments presented by the Examiner and Appellants, as described above, we have concluded that a prima facie case of obviousness has not been established with regard to claims 1 and 20, as well as claims 2-4, 7, and 8, dependent thereon. Therefore, we do not sustain the 35 U.S.C. § 103 rejection of claims 1-4, 7, 8, and 20 over Manchester and Tabu, nor of claims 5, 6, 9, 18, and 19 as the Examiner has not identified any teachings in Chui, Lentz, Pajowski, or Panzarella related to the traffic rate of the low tier and the high tier buses to overcome the deficiencies of Manchester and Tabu discussed above. Similarly, as no modification to Dove was discussed by the Examiner to overcome the deficiency of Dove with respect to anticipating the subject matter of base claim 10, the rejection of claims 14-16 cannot be sustained.

ORDER

The decision of the Examiner rejecting claims 1-20 is reversed.

REVERSED

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