

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

TULIP COMPUTERS)	
INTERNATIONAL B.V.,)	
)	
Plaintiff,)	
)	
v.)	Civil Action No. 00-981-###
)	
DELL COMPUTER CORPORATION,)	
)	
Defendant.)	

MEMORANDUM OPINION

Steven J. Balick, Esquire and John G. Day, Esquire, Ashby & Geddes, Wilmington, Delaware.

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Wilmington, Delaware
December 19, 2002

Thynge, U.S. Magistrate Judge

I. INTRODUCTION

This is a patent infringement case. On November 24, 2000, Tulip Computers International B.V. (“Tulip”)¹ filed its complaint (D.I. 1) alleging infringement of its U.S. patent No. 5,594,621 (“the ‘621 patent”) by specific systems in defendant Dell Computer Corporation’s (“Dell”)² OptiPlex line of computers. On January 19, 2001, Dell filed its answer (D.I. 6) denying Tulip’s allegations and alleging that the ‘621 patent is invalid, unenforceable, and not infringed. On August 15, 2002, this court entered an amended scheduling order (D.I. 281) pursuant to which the parties filed a joint submission of disputed claim terms on September 20, 2002 (D.I. 308). Simultaneous briefing on the parties’ respective claim interpretations was completed on October 25, 2002. Case dispositive pretrial summary judgment motions were filed on October 11, 2002³ and briefing on those motions was completed on November 1, 2002. Pursuant to *Markman v. Westview Instruments, Inc.*⁴ and local practice, oral argument was held November 7, 2002 on the parties’ claim interpretations and motions for summary judgment. On December 9, 2002 this court issued its opinion construing the disputed claim terms (D.I. 411).

In support of its motion for partial summary judgment of literal infringement (D.I. 338), Tulip argues that it is entitled to judgment as a matter of law that certain of Dell’s

¹ Tulip is a Dutch corporation with its principal place of business in the Netherlands.

² Dell is a Delaware corporation with its principal place of business in Texas.

³ Tulip’s motion for partial summary judgment of validity under 35 U.S.C. § 112 (D.I. 336), Tulip’s motion for partial summary judgment of literal infringement (D.I. 338), Tulip’s motion for partial summary judgment of no inequitable conduct (D.I. 341), Dell’s motion for partial summary judgment on failure to mark and noninfringement (D.I. 344), Dell’s motion for summary judgment of unenforceability due to inequitable conduct (D.I. 347), and Dell’s motion for summary judgment on invalidity (D.I. 350).

⁴ 52 F.3d 967 (Fed. Cir. 1995) (en banc), *aff’d*, 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996).

products literally infringe claims 1 and 2 of the '621 patent. This is the court's determination of that motion.

II. BACKGROUND⁵

The '621 patent, entitled "Motherboard for a Computer of the AT Type, and a Computer of the AT Type Comprising Such Motherboard," describes and claims a personal computer having a novel motherboard form factor.⁶ The invention concerns the placement of a riser card connector at a specific location on a motherboard and the arrangement of expansion board connectors on a riser card to achieve certain purported benefits recited in the patent specification. Tulip alleges that fourteen models of Dell's OptiPlex line of computers literally infringe the '621 patent (the "accused models" or "accused products"). The accused models are: (1) the GX Pro; (2) the Gs/Gs+; (3) the GXi; (4) the GXa; (5) the GXa EM; (6) the Gn/Gn+; (7) the GX1 (1st version); (8) the GX1 (2nd version); (9) the GX1p; (10) the E1; (11) the G1; (12) the GX100; (13) the GX110; and (14) the GX200. Many of the accused products were sold in various chassis configurations: low desktop profile ("L"), medium desktop ("M"), and mini-tower ("T"). These configurations contained riser cards having three, five, and seven expansion slots, respectively. Each 3-slot riser card includes one dedicated ISA connector, one dedicated PCI connector, and one combi-connector.⁷ Each 7-slot riser card includes two dedicated ISA connectors, three dedicated PCI

⁵ See D.I. 411 for the court's construction of disputed claim terms and a discussion of the background of the technology and the patented invention that is the subject of this litigation.

⁶ The term "form factor" refers to the shape and configuration of the components on a motherboard.

⁷ ISA (Industry Standard Architecture) and PCI (Peripheral Component Interconnect) are different types of buses that carry signals among the components on the motherboard and to the riser card. A combi-connector occupies a single expansion position (or "slot") and has two expansion connectors, one that can receive an ISA type board and one that can receive a PCI type board. The two expansion connectors of the combi-connector are physically close together and a user can insert either an ISA board or a PCI board into the combi-connector, but not both types of boards simultaneously.

connectors, and two combi-connectors. Accused devices having a medium desktop chassis contain one of two configurations of 5-slot riser cards. One 5-slot riser card configuration includes two dedicated ISA connectors, two dedicated PCI connectors, and one combi-connector. The other 5-slot riser card configuration includes three dedicated PCI connectors, two combi-connectors, and no dedicated ISA connectors. Tulip alleges fifty-eight model/configuration/riser card combinations literally infringe claims 1 and 2 of the '621 patent.

Dell has produced engineering drawings of the motherboards included in each of its accused products and engineering drawings of each of the riser card configurations included in those products. Tulip contends, therefore, that there is no dispute between the parties as to the structure of the accused infringing products. Based on its suggested construction of the claims at issue, Tulip maintains that each element of those claims is present in each of the accused Dell products and that Tulip is entitled to summary judgment that each literally infringes claims 1 and 2 of the '621 patent.

III. LEGAL STANDARD

A grant of summary judgment pursuant to Fed. R. Civ. P. 56(c) is appropriate “if the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law.”⁸ This standard is applicable to all types of cases, including patent cases.⁹ A Rule 56(c) movant bears the burden of establishing the lack of a genuinely disputed material fact by demonstrating “that there is

⁸ Fed. R. Civ. Pro. 56(c).

⁹ *Johnston v. IVAC Corp.*, 885 F.2d 1574, 1576-77 (Fed. Cir. 1989).

an absence of evidence to support the nonmoving party's case."¹⁰ The nonmovant must be given the benefit of all justifiable inferences and the court must resolve any disputed issue of fact in favor of the nonmovant.¹¹

IV. POSITIONS OF THE PARTIES

Not having the benefit of the court's claim construction when briefing their respective positions on Tulip's motion for partial summary judgment of literal infringement, the parties reiterate many of the arguments made in support of their competing claim constructions in presenting their respective positions on this motion. Both parties agree that Dell's engineering drawings define the structure of the motherboards and riser cards in each of the accused infringing products. Each party, based on its own suggested claim construction, comes to a contradictory conclusion as to whether claims 1 and 2 of the '621 patent read on the accused Dell products.

Dell contends that two of the disputed claim terms preclude a grant of summary judgment of literal infringement. First, Dell argues that any definition giving meaning to all three words of the disputed phrase "peripheral side edge" would result in an issue of fact material to the question of literal infringement. Dell suggests that "peripheral side edge," if the phrase can be understood to have a definite meaning, is directed to a motherboard having a riser card connector located parallel and adjacent to one of the long sides of a rectangular motherboard. Dell points to the preferred embodiment of Tulip's invention shown in Figure 4 of the '621 patent and its proposed construction of the disputed phrase

¹⁰ *Celotex Corp. v. Catrett*, 477 U.S. 317, 325, 106 S.Ct. 2548, 91 L.Ed.2d 265 (1986).

¹¹ *Eastman Kodak Co. v. Image Technical Servs., Inc.*, 504 U.S. 451, 456, 112 S.Ct. 2072, 119 L.Ed.2d 265 (1992).

as support for its position. Dell asserts that all of its accused products have a riser card connector located along one of the short sides of a rectangular motherboard and, therefore, its riser card connectors are perpendicular to a peripheral side edge of the motherboard (as defined by Dell) and not parallel to a peripheral side edge of the motherboard. Dell insists that an issue of fact exists regarding whether a riser card connector located along a short side of a rectangular motherboard literally infringes claims 1 and 2 of the '621 patent.

Second, Dell maintains that the claims at issue require expansion boards to be inserted into the expansion connectors on the riser card to practice Tulip's invention. Dell argues that Tulip's failure to identify which of the purportedly infringing products were sold with expansion boards inserted into the riser card, creates another question of fact that makes a grant of summary judgment of literal infringement inappropriate.

Tulip contends that Dell's arguments in opposition to its motion presuppose the court's acceptance of Dell's suggested construction of the two disputed claim terms noted above. Tulip points out that Dell has not identified any material facts with regard to literal infringement that would be in dispute if the court accepts Tulip's proposed construction of the disputed terms. Tulip states that even if the court accepts Dell's argument that claims 1 and 2 of the '621 patent require expansion boards to be inserted into the riser card to practice its invention, there is record evidence that some of the accused products were so configured. In that event, Tulip moved, pursuant to Fed. R. Civ. P. 56(f), to reopen discovery on that narrow issue.¹² Finally, Tulip maintains that if the court accepts Dell's argument that claims 1 and 2 of the '621 patent only cover riser cards having a single

¹² See D.I. 361 (Tulip's Rule 56(f) motion).

combi-connector, accused products with riser cards that meet that limitation have been identified and summary judgment of literal infringement is proper at least as to those specific products. Tulip notes Dell's seeming agreement with its position by noting Dell's statement in its brief opposing Tulip's motion that "if the term 'one' really means one, then *many* of the accused Dell computer systems would not literally infringe the claims."¹³

V. ANALYSIS

A court's consideration of a patent infringement claim is a two step process. The first step is for the court to make the legal determination of how the claims at issue are to be construed.¹⁴ The second step is a factual determination of whether the accused product infringes, either literally or by equivalents, made by comparing the properly construed claims to the accused product.¹⁵ In order to prevail on a claim of literal infringement, "the patentee must show that the accused products contain every limitation in the asserted claims. If even one limitation is missing or not met as claimed, there is no literal infringement."¹⁶ Frequently, as here, the parties do not dispute the structure of the accused products and the court's claim construction will be determinative of the infringement issue.¹⁷

As a result of this court's construction of the disputed phrases, Dell's arguments that summary judgment of literal infringement is inappropriate because of continuing disputes of fact necessarily fail. As noted in this court's December 9, 2002 claim construction

¹³ D.I. 369 at 6 (footnote omitted) (emphasis added).

¹⁴ *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1365 (Fed. Cir. 2002).

¹⁵ *Id.*

¹⁶ *Mas-Hamilton Group v. LaGard, Inc.*, 156 F.3d 1206, 1211 (Fed. Cir. 1998) (citations omitted).

¹⁷ *CCS Fitness*, 288 F.3d at 1365; *see also Athletic Alternatives, Inc. v. Prince Mfg., Inc.*, 73 F.3d 1573, 1578 (Fed. Cir. 1996) (stating that where "the parties do not dispute any relevant facts regarding the accused product but disagree over which of two possible meanings of [the claim at issue] is the proper one, the question of literal infringement collapses to one of claim construction and is thus amenable to summary judgment").

opinion, Dell’s proposed construction of the phrase “peripheral side edge” could not be applied to a square motherboard, a shape not excluded from coverage by claims 1 and 2 of the ‘621 patent. This court, therefore, determined that Dell’s definition of the word “side,” as distinguishing the long edges from the short edges of a rectangular motherboard, inappropriately limited the scope of the claims at issue. Instead, this court accepted a definition of the word “side” which distinguished the edges on which the riser card connector could be located from the front or back edges of a motherboard.¹⁸ The court also determined that, although “the words ‘peripheral’ and ‘edge’ are synonymous references to the boundary of the motherboard,”¹⁹ one of ordinary skill in the art would understand the bounds of the invention being claimed and that the disputed phrase did not render the claims at issue indefinite in violation of 35 U.S.C. §112, ¶ 2.²⁰ As a result, there is no dispute of fact as to the location on a motherboard of the riser card connector covered by claims 1 and 2 of the ‘621 patent. The court’s additional determination that the claims at issue do not require that expansion boards be inserted into the riser card similarly nullifies any dispute of fact regarding which, if any, of the accused products were sold having expansion boards inserted into a riser card.²¹

Finally, Tulip is correct in its assertion that summary judgment of literal infringement may be appropriate as to some of the accused products even if the court determines, as it has, that claims 1 and 2 of the ‘621 patent are limited to riser cards having a single combi-connector. The court disagrees with Dell’s characterization of Tulip’s argument as

¹⁸ See D.I. 411 at 36-41.

¹⁹ D.I. 414 at 8.

²⁰ See *id.*

²¹ In light of this determination, the court also dismissed as moot Tulip’s Rule 56(f) motion (D.I. 416).

raising an additional motion for partial summary judgment. Tulip has moved for partial summary judgment of literal infringement by fifty-eight accused Dell products. Any of those products which include every limitation recited in claims 1 and 2 (as construed by this court) will literally infringe Tulip’s patent. There is no requirement that separate motions for summary judgment of literal infringement be filed covering the parties’ alternative constructions for each of the disputed terms. The court has construed the claims at issue and will now compare those claims to the accused products.

The table below lists the products Tulip contends infringe claims 1 and 2 of the ‘621 patent. The table recites: the fourteen accused models and associated motherboards, the chassis configurations of each model, and the types of riser cards included in each chassis configuration of the accused models.²²

Accused Model	Motherboard	Chassis Configuration	Corresponding Riser Card(s)
GX Pro	53092	M	09555
Gs/Gs+	94179	L	82424
			85528
			92350
		M	8699D
			82310
			85524
			93913
Accused Model	Motherboard	Chassis Configuration	Corresponding Riser Card(s)
GXi	54484	L	82424

²² See D.I. 340, Ex. 1 (Dell document listing models, motherboard drawing numbers, chassis configurations, and riser card drawing numbers); D.I. 339 at 14-15 (Tulip’s opening Br. listing the accused products).

			85528
			92350
		M	8699D
			82310
			85524
			93913
			82348
			93909
		T	82392
GXa	80281	L	82424
		M	8699D
			82348
			93909
		T	82392
			87620
GXa EM	57772	L	82424
		M	8699D
			82348
			93909
		T	82392
			87620
Gn/Gn+	87518	L	82424
		M	8699D
		T	82392
			87620
GX1 (1 st version)	88883	L	82424
		M	8699D
			82348
		T	82392
Accused Model	Motherboard	Chassis Configuration	Corresponding Riser Card(s)
GX1 (2 nd version)	0903C	L	82424

		M	8699D
			82348
		T	82392
GX1p	0903C	M	82348
		T	82392
E1	5362C	L	82424
		T	8669D
G1	0903C	L	82424
		M	8699D
			82348
		T	82392
GX100	432EU	L	3224D
		T	2524D
GX110	4809T or 87GEX	L	3224D
		M	4424D
		T	2524D
GX200	03VCN	L	3224D
		M	4424D
		T	2524D

The court has examined the engineering drawings produced by Dell illustrating the motherboards and riser cards contained in the accused products and considered the record evidence in making its determination on the issue of literal infringement. Any of the accused products having every limitation set forth in the claims at issue literally infringes Tulip's patent. After comparing the properly construed claims of the '621 patent to the accused products, the court finds that some, but not all, of the accused products literally infringe claims 1 and 2 of that patent. Both claims recite identical limitations with the only difference between the two claims being the preamble of each. The preamble of claim 1

recites: “An assembly for use in a personal computer, said assembly comprising.” The preamble of claim 2 recites: “A personal computer having.” Each claim continues with the following body:

a motherboard;

a mating connector for a riser card, said mating connector situated on the motherboard and adjacent and parallel to a peripheral side edge thereof, said mating connector having an opening adapted to receive a riser card, said mating connector being oriented on the motherboard such that the opening extends in a direction perpendicularly upward from a horizontal surface of the motherboard; and

the riser card having a predetermined number of expansion positions thereon, each of said positions having at least one expansion connector associated therewith so as to form a plurality of expansion connectors located on the riser card such that a plurality of expansion boards can be simultaneously mated through said expansion connectors to said riser card, said one expansion connector being either an ISA (industry standard architecture) or a PCI (peripheral connect interface) type connector so as to respectively accommodate an ISA or PCI type expansion board, all of the expansion connectors being horizontally oriented and successively arranged in a parallel fashion one above another,

and said riser card being oriented with respect to the motherboard such that each one of the plurality of expansion boards inserted into a corresponding one of said expansion connectors is oriented in a direction substantially parallel to a horizontal plane of the motherboard and extends inward from a vicinity of the side edge towards a central portion of the motherboard;

wherein a predefined one of the positions on the riser card has both ISA type and PCI type expansion connectors associated therewith and situated one above another so as to accommodate either an ISA type or a PCI type expansion board in said predefined one position, wherein said predefined one position is located on the riser card below at least one of the positions having the ISA type expansion connector and above at least one of the positions having the PCI type expansion connector.²³

As noted above, there is no dispute concerning the structures of the accused products and the parties’ arguments concerning literal infringement center on the

²³ ‘621 at 5:65-6:35 (claim 1); *id.* at 6:37-7:7 (claim 2).

construction of the term “peripheral side edge” and the determination of whether Tulip’s invention is limited to covering riser cards with a single combi-connector and whether expansion boards are required to be inserted into the riser card. Having construed the disputed terms in the claims at issue, a determination of literal infringement becomes a somewhat mechanical exercise for the court. The court is mindful, however, of the requirement that the accused products contain each and every limitation of an asserted claim before literal infringement can be found. Therefore, the court will lay out its specific finding on each claim limitation despite the parties’ apparent lack of disagreement over the presence of certain of those limitations in the accused products.

This court determined that the term “personal computer” recited in the preambles to both claims 1 and 2 limits the scope of those claims to covering “a computer for individual or home use, but not including a notebook computer.”²⁴ All of the accused products are computers for individual or home use and each contain the particular assembly differentiating each model and chassis configuration. None of the accused products are notebook computers. Therefore, the court finds that the “personal computer” limitation of claims 1 and 2 of the ‘621 patent is present in each of the accused products.

The accused products all include “a motherboard” having:

a mating connector for a riser card, said mating connector situated on the motherboard and adjacent and parallel to a peripheral side edge thereof; said mating connector having an opening adapted to receive a riser card, said mating connector being oriented on the motherboard such that the opening extends in a direction perpendicularly upward from a horizontal surface of the motherboard.²⁵

The engineering drawings illustrating the motherboards contained in the accused products

²⁴ D.I. 411 at 58.

²⁵ ‘621 at 5:66-6:6 (claim 1); *id.* at 6:38-45 (claim 2).

each show a motherboard having a riser card connector “nearby but not touching the side edge of the motherboard”²⁶ that “is not the front or rear [edge] of the motherboard.”²⁷ The riser card connector is shown as being oriented so that it extends in the same direction as the side edge of the motherboard, with the same distance separating the riser card connector and the side edge of the motherboard and the riser card connector never touching the side edge of the motherboard.²⁸ Many of the engineering drawings illustrating the motherboards of the accused products are explicit in specifying that, with respect to the plane of the motherboard, the “riser [card connector]. . . must be perpendicular, parallel and flush to” the motherboard.²⁹ A riser card inserted into the riser card connector on the motherboard of each of the accused products would extend perpendicularly from the surface of the motherboard. Therefore, the court finds that the requirements of claims 1 and 2 of the ‘621 patent, that a riser card connector be located adjacent and parallel to the side edge of the motherboard and oriented such that when a riser card is inserted into the connector it extends perpendicularly from the surface of the motherboard, are all present in each of the accused products.

The engineering drawings illustrating the various riser cards included in the accused

²⁶ D.I. 411 at 58 (defining “adjacent”).

²⁷ *Id.* (defining “side edge” and “peripheral side edge”).

²⁸ See *id.* (defining “parallel”); D.I. 340, Ex. 2 (Dell engineering drawings illustrating motherboards included in the accused products: DELL 184707-10 (motherboard 53092 included in the GX Pro model); DELL 184711-14 (motherboard 94179 included in the Gs/Gs+ model); DELL 184715-18 (motherboard 54484 included in the GXi model); DELL 184719-22 (motherboard 80281 included in the GXa model); DELL 184723-26 (motherboard 57772 included in the GXa EM model); DELL 184727-30 (motherboard 87518 included in the Gn/Gn+ model); DELL 184735-38 (motherboard 88883 included in the GX1 (1st version) model); DELL 184731-34 (motherboard 0903C included in the GX1 (2nd version), GX1p, and G1 models); DELL 184739-41a (motherboard 5362C included in the E1 model); DELL 184745-46 (motherboard 432EU included in the GX100 model); DELL 184747-48 (motherboard 4809T included in some GX110 models); DELL 184751-52 (motherboard 87GEX included in some GX110 models); and DELL 184759-62 (motherboard 03CVN included in the GX200 model)). Dell design engineer, Matthew Mendelow, acknowledged that the GX Pro model had a riser card parallel to the left-hand side of the motherboard (*i.e.*, a boundary that is not the front or back of the motherboard) as viewed from the front of the computer. See D.I. 339, Ex. F at 62 (Mendelow deposition).

²⁹ See, *e.g.*, D.I. 340, Ex. 2 at DELL 184707.

products show that each of those cards has:

a predetermined number of expansion positions thereon, each of said positions having at least one expansion connector associated therewith so as to form a plurality of expansion connectors located on the riser card such that a plurality of expansion boards can be simultaneously mated through said expansion connectors to said riser card, said one expansion connector being either an ISA . . . or a PCI . . . type connector so as to respectively accommodate an ISA or PCI type expansion board, [and] all of the expansion connectors [are] horizontally oriented and successively arranged in a parallel fashion one above another.³⁰

Therefore, the court finds that the elements of claims 1 and 2 of the '621 patent, requiring a riser card having a predetermined number of expansion positions, which positions each have at least one expansion connector capable of receiving either an ICA type expansion board or a PCI type expansion board, and which connectors are horizontally arranged on the riser card and successively arranged parallel to each other, are also all present in each of the accused products.

The court has determined that the next element of the claims at issue,

³⁰ '621 at 6:7-19 (claim 1); *id.* at 6:46-58 (claim 2). See D.I. 340, Ex. 3 (Dell engineering drawings illustrating 3-slot risers included in the accused products: DELL 180365-66 (riser card 82424 included in the low profile desktop ("L") chassis configuration of some Gs/Gs+, GXi, GXa, GXa EM, Gn/Gn+, GX1 (1st and 2nd versions), E1, and G1 models); DELL 180385-86 (riser card 85528 included in the L chassis configuration of some Gs/Gs+ and GXi models); DELL 180392 (riser card 92350 included in the L chassis configuration of some Gs/Gs+ and GXi models); and DELL 180363 (riser card 3224D included in the L chassis configuration of the GX100, GX110, and GX 200 models));

id., Ex 4 (Dell engineering drawings illustrating 5-slot risers included in the accused products: DELL 184766-67 (riser card 09555 included in the medium desktop ("M") chassis configuration of the GX Pro model); DELL 184768-69 (riser card 8699D included in the M chassis configuration of some Gs/Gs+, GXi, GXa, GXa EM, Gn/Gn+, GX1 (1st and 2nd versions), and G1 models and included in the mini-tower chassis configuration of the E1 model); DELL 180375-76 (riser card 82310 included in the M chassis configuration of some Gs/Gs+ and GXi models); DELL 180383-84 (riser card 85524 included in the M chassis configuration of some Gs/Gs+ and GXi models); DELL 180394 (riser card 93913 included in the M chassis configuration of some GXi, GXa, GXa EM, GX1 (1st and 2nd versions), GX1p, and G1 models); DELL 180393 (riser card 93909 included in the M chassis configuration of some GXi, GXa, and GXa EM models); and DELL 180364 (riser card 4424D included in the M chassis configuration of the GX110 and GX200 models));

id., Ex. 5 (Dell engineering drawings illustrating 7-slot risers included in the accused products: DELL 184772-73 (riser card 82392 included in the mini-tower ("T") chassis configuration of some GXi, GXa, GXa EM, Gn/Gn+, GX1 (1st and 2nd version), GX1p, and G1 models); DELL 180388-89 (riser card 87620 included in the T chassis configuration of some GXa, GXa EM, and Gn/Gn+ models); and DELL 180361-62 (riser card 2524D included in the T chassis configuration of the GX100, GX110, and GX200 models)).

said riser card being oriented with respect to the motherboard such that each one of the plurality of expansion boards inserted into a corresponding one of said expansion connectors is oriented in a direction substantially parallel to a horizontal plane of the motherboard and extends inward from a vicinity of the side edge towards a central portion of the motherboard,³¹

means that “connectors on the riser card can accommodate expansion boards but there is no requirement that expansion boards be inserted into those connectors.”³² Because the riser cards of the accused products extend perpendicularly from the surface of the motherboard when inserted into the rise card connector, any expansion boards inserted into the expansion board connectors located on the surface of such riser card would necessarily be oriented parallel to the horizontal plane of the motherboard. Since the motherboards of all of the accused products have riser card connectors located adjacent and parallel to the side edge of those motherboards, expansion boards inserted into the riser cards of the accused products would also necessarily extend inward from a vicinity of the side edge toward the center of the motherboard. Therefore, the court finds that this element of claims 1 and 2 is present in each of the accused products.

The court has determined that the final element at issue,

wherein a predefined one of the positions on the riser card has both ISA type and PCI type expansion connectors associated therewith and situated one above another so as to accommodate either an ISA type or a PCI type expansion board in said predefined one position, wherein said predefined one position is located on the riser card below at least one of the positions having the ISA type expansion connector and above at least one of the positions having the PCI type expansion connector,³³

means that the “riser card has a single expansion position having a single combi-connector [and] there is at least one dedicated ISA type expansion connector above the single combi-

³¹ ‘621 at 6:20-26 (claim 1); *id.* at 6:59-65 (claim 2).

³² D.I. 411 at 58.

³³ ‘621 at 6:27-35 (claim 1); *id.* at 6:66-7:7 (claim 2).

connector and at least one dedicated PCI type expansion connector below the single combi-connector.”³⁴ This limitation is found in only some of the accused products.

All of the 3-slot riser cards have a single dedicated ISA connector above a single combi-connector and a single PCI connector below the single combi-connector (riser card drawing numbers 82424, 85528, 92350, and 3224D). This being the final claim limitation, and having determined that all of the other limitations of claims 1 and 2 of the ‘621 patent are present in each of the accused products, the court finds that each accused product having a 3-slot riser card literally infringes the claims at issue.

There are two configurations of 5-slot riser cards included in the accused products. One configuration of 5-slot riser card has two dedicated ISA connectors above a single combi-connector and two dedicated PCI connectors below the single combi-connector (riser card drawing numbers 8699D, 82310, 85524, 93913, and 4424D). Such a configuration is literally covered by claims 1 and 2 of the ‘621 patent and the court finds that any of the accused products having this type of 5-slot riser card literally infringes those claims. The second type is a riser card having two combi-connectors (riser card drawing numbers 09555, 82348, and 93909). Because the claims at issue have been found to cover only riser cards having a single combi-connector, none of the accused products having a 5-slot riser card with two combi-connectors literally infringes the claims at issue.

Finally, all of the 7-slot riser cards included in the accused products have two combi-connectors (riser card drawing numbers 82392, 87620, and 2524D). Therefore, none of the accused products sold with a 7-slot riser card literally infringes claims 1 and 2 of the ‘621 patent.

³⁴ D.I. 411 at 59.

VI. CONCLUSION

For the reasons stated above, Tulip's motion for summary judgment of literal infringement is GRANTED in part and DENIED in part. An appropriate order consistent with this memorandum will follow.