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Technical Review of the:

Northern Telecom Patent Portfolio

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Preliminary Report: September 14, 1998

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Introduction

The purpose of this report is to review the technical merit and value of the Northern Telecom (Montreal, Canada) patent portfolio. Only those patents relating to VMEbus packaging and power distribution technologies are included. The report uses a style similar to a 'portfolio value assessment', which is usually created in response to a corporate acquisition or licensing request. In these situations the patent portfolio is reviewed on its technical merits so that a fair sale or royalty price can be established. However, in this case the assessment is written from the perspective of the VMEbus community at large, which encompasses a wide range of target markets such as industrial controls, military, telecom, scientific apparatus and other areas. No special emphasis is placed on the telecommunications market in this report.

Preliminary Findings

The tables (below) outline the preliminary findings of the reviewer. Reviews of Beun '009 and Dynie '289 (the 'injector handle' patents) have not been completed. With the exception of these two patents, the Northern Telecom portfolio does not appear to anticipate products that are commonly used by the VMEbus community at large. Some or all of the claimed inventions may protect technology that is specific to the Northern Telecom product offering, and may be of interest to other players in the telecom market. However, the reviewer did not specifically address this niche market area.

About the Reviewer

Wade Peterson is an independent engineering consultant who specializes in the design of VMEbus boards, integrated circuits, systems and software. His VMEbus experience covers a wide range of applications, with a special emphasis on industrial automation. Currently, he is President and CEO of Silicore Corporation, a company which designs, manufactures and sells intellectual property (IP) cores for FPGA and ASIC devices. Previously he served as Manager of Technology for MTS Systems Corporation in Cary, NC, and as a system integrator for the same company in Minneapolis, MN. Until 1987 he was a VMEbus board designer for Mizar Incorporated in St. Paul, MN. Mr. Peterson is the author of four editions of The VMEbus Handbook (VITA, 1997), has written numerous articles and papers on the subject of VMEbus, is a named inventor on four patents in the areas of industrial automation and sensor systems, and holds a BEE degree in Electrical Engineering from the University of Minnesota. He also presents a regular seminar for VITA entitled UNDERSTANDING VME64 throughout the United States, Canada and Europe.

Comments about this report are encouraged, and should be directed to: Wade D. Peterson, Silicore Corporation, 3525 East 27th Street, Suite 301, Minneapolis, MN 55406. TEL: 612.722.3815, FAX: 612.722.5841, e-mail: peter299@maroon.tc.umn.edu

Key to Charts

Claim

The claim number of the patent document.

Claim Type

The type of claim: I = independent claim; D(N) = dependant on claim 'N'.

Review Incomplete

The indicated claim has not been reviewed in its entirety.

Valuable Claim

The claim appears to protect valuable technology in the target market.

Significant Prior Art Identified

The reviewer is aware of another invention that pre-dates the *filing date* of the patent, and believes that the claim reads on that invention. The reviewer is personally satisfied that the invention represents prior art, but that evidence in his possession may or may not be suitable for litigation. Prior art makes the claim less valuable, as it may not be enforceable.

Prior art information may be gleaned from personal experience, other patent documents, product datasheets or reverse engineered products. For the purposes of this review, the *filing date* of the patent is assumed to represent the actual date of invention. The reviewer may or may not be aware of the actual date of invention (as this is not public knowledge). Also, under US Patent law the actual date of invention usually occurs sometime before the filing date.

Easy to Design Around Claim

One or more other methods for achieving the same goals of the claim have been devised by the reviewer. The indicated claim does not anticipate these other methods. This makes the claimed invention less valuable, as other methods can be used.

Limited Application to the Target Market

In the opinion of the reviewer, the claimed invention has limited application in the target market. For purposes of this report, the 'target market' includes all VMEbus market areas, including (but not limited to) those described in the introduction (above). The invention does not represent any standard industry practice known to the reviewer, and is not expected to affect most products designed to the VMEbus standards. The VMEbus standards include Rev B, Rev C, Rev C.1, Rev C.3, IEEE 1014-1987, ANSI/VITA 1-1994 (VME64), VITA 1-1997 (VME64x), IEEE 1101.1, IEEE 1101.2, IEEE 1101.10 and the IEEE 1101.11. The invention may have utility in certain telecom niche applications, which are unknown to the reviewer.

Title: BACKPANEL ASSEMBLIES

Inventor(s): Bunner et al.

Patent Number: US No. 4,511,950

Filed: June 27, 1983

Claim	Claim Type	Disposition					Comments
		Review Incomplete	Valuable Claim	Significant Prior Art Identified	Easy To Design Around Claim	Limited Application in Target Market	
1	I					•	Claim describes a flexible method for power distribution. Backplane must allow (a) a single power supply connection point (to provide current to all boards) or (b) multiple power supply connection points (each providing current to a subset of boards). Invention does not represent any standard industry practice known to reviewer, but may have value in certain niche applications.
2	D(1)					•	Ibid. Claim 1.
3	D(1)					•	Ibid. Claim 1.
4	D(1)					•	Ibid. Claim 1.
5	D(1)					•	Ibid. Claim 1.
6	I					•	Ibid. Claim 1.
7	D(6)					•	Ibid. Claim 1.
8	D(2)					•	Ibid. Claim 1.
9	D(6)					•	Ibid. Claim 1.
10	D(7)					•	Ibid. Claim 1.

Title: BACKPANEL ASSEMBLIES
 Inventor(s): Brombal et al.
 Patent Number: US No. 4,575,780
 Filed: April 3, 1984

Claim	Claim Type	Disposition					Comments
		Review Incomplete	Valuable Claim	Significant Prior Art Identified	Easy To Design Around Claim	Limited Application in Target Market	
1	I					•	Invention does not represent any standard industry practice known to reviewer, but may have value in certain niche applications.
2	D(1)					•	Ibid. Claim 1.

Title: ELECTRONIC APPARATUS WITH ELECTRO-MAGNETIC INTERFERENCE SCREENING

Inventor(s): Brombal et al.

Patent Number: US No. 4,631,641

Filed: July 18, 1985

Claim	Claim Type	Disposition					Comments
		Review Incomplete	Valuable Claim	Significant Prior Art Identified	Easy To Design Around Claim	Limited Application in Target Market	
1	I			•			Tektronix packaging.
2	D(1)			•			Tektronix packaging.
3	D(1)			•			Tektronix packaging.
4	D(1)				•		Do not use <i>adhesive</i> EMI strip.
5	D(3)			•			Tektronix packaging.
6	D(5)				•		Do not use <i>adhesive</i> EMI strip.
7	D(3)			•			Tektronix packaging.
8	D(1)			•			Tektronix packaging.
9	I				•		Claim specifies plurality of clips and EMI gasket that extends laterally from a slot. Claim does not anticipate panels similar to those made by Rittal.
10	D(9)				•		This dependant claim is irrelevant if a method, not anticipated by Claim 9, is used.
11	D(10)				•		This dependant claim is irrelevant if a method, not anticipated by Claim 9, is used.
12	D(10)				•		This dependant claim is irrelevant if a method, not anticipated by Claim 9, is used.
13	D(10)				•		This dependant claim is irrelevant if a method, not anticipated by Claim 9, is used.
14	I				•		Ibid. Claim 9. Also requires front panel to be extruded.

Title: ARTICULATED LATCH FOR USE WITH A PRINTED CIRCUIT BOARD
 Inventor(s): Beun et al.
 Patent Number: US No. 4,648,009
 Filed: April 9, 1986

Claim	Claim Type	Disposition					Comments
		Review Incomplete	Valuable Claim	Significant Prior Art Identified	Easy To Design Around Claim	Limited Application in Target Market	
1	I	•					
2	D(1)	•					
3	D(2)	•					
4	D(3)	•					
5	D(4)	•					
6	D(5)	•					
7	D(1)	•					
8	D(7)	•					
9	D(8)	•					
10	D(9)	•					
11	D(10)	•					
12	D(11)	•					
13	D(12)	•					
14	D(2)	•					
15	I	•					
16	D(15)	•					
17	D(16)	•					
18	D(17)	•					

Title: LATCH MECHANISM FOR A PLUG-IN CARTRIDGE OR THE LIKE
 Inventor(s): Dynie
 Patent Number: US No. 4,947,289
 Filed: October 19, 1989

Claim	Claim Type	Disposition					Comments
		Review Incomplete	Valuable Claim	Significant Prior Art Identified	Easy To Design Around Claim	Limited Application in Target Market	
1	I	•					
2	D(1)	•					
3	D(1or2)	•					
4	D(1or2)	•					

Title: ELECTRONIC SHELF KEYING AND ALIGNMENT COMBINATION
 Inventor(s): Kielstra et al.
 Patent Number: US No. 5,402,320
 Filed: November 18, 1993

Claim	Claim Type	Disposition					Comments
		Review Incomplete	Valuable Claim	Significant Prior Art Identified	Easy To Design Around Claim	Limited Application in Target Market	
1	I			•			VERO Electronics PCB Polarizing device. Also reference preferred embodiment of DT 23 62 060.
2	D(1)			•			Ibid. Claim 1.
3	D(1)				•	•	Claim does not anticipate keying method used in IEEE 1101.10, as that method does not use an "inner receptacle being rotatable within the outer receptacle".
4	D(3)				•	•	This dependant claim is irrelevant if a method, not anticipated by Claim 3, is used.
5	D(4)				•	•	This dependant claim is irrelevant if a method, not anticipated by Claim 3, is used.
6	D(5)				•	•	This dependant claim is irrelevant if a method, not anticipated by Claim 3, is used.
7	D(3)				•	•	This dependant claim is irrelevant if a method, not anticipated by Claim 3, is used.
8	D(7)				•	•	This dependant claim is irrelevant if a method, not anticipated by Claim 3, is used.
9	D(5)				•	•	This dependant claim is irrelevant if a method, not anticipated by Claim 3, is used.
10	D(1)				•	•	Claim does not anticipate keying method used in IEEE 1101.10, as that method does not use an "integral latch means".

Title: PRINTED CIRCUIT BOARDS AND HEAT SINK STRUCTURES
 Inventor(s): Katchmar
 Patent Number: US No. 5,467,251
 Filed: October 8, 1993

Claim	Claim Type	Disposition					Comments
		Review Incomplete	Valuable Claim	Significant Prior Art Identified	Easy To Design Around Claim	Limited Application in Target Market	
1	I					•	Conduction cooling method which specifies a novel way of mounting components and distributing heat within a circuit board. Limited, niche applications over methods employed by IEEE 1101.2 and Storrow et al. US No. 4,879,634. Invention does not represent any standard industry practice known to reviewer, but may have value in certain niche applications.
2	D(1)					•	Ibid. Claim 1
3	D(1)					•	Ibid. Claim 1
4	D(1)					•	Ibid. Claim 1
5	I					•	Ibid. Claim 1
6	I					•	Ibid. Claim 1
7	D(6)					•	Ibid. Claim 1
8	I					•	Ibid. Claim 1
9	D(8)					•	Ibid. Claim 1

Title: VME BUS COMPATIBLE BACKPLANE AND SHELF ARRANGEMENT
 Inventor(s): Mistry et al.
 Patent Number: US No. 5,488,541
 Filed: June 1, 1994

Claim	Claim Type	Disposition					Comments
		Review Incomplete	Valuable Claim	Significant Prior Art Identified	Easy To Design Around Claim	Limited Application in Target Market	
1	I					•	Claim requires rear transition modules to be "mounted at a location laterally intermediate" the VMEbus P1 and P2 connectors. For example, does not 'read on' standard IEEE 1101.11 compatible systems. Invention does not represent any standard industry practice known to reviewer, but may have value in certain niche applications.
2	D(1)					•	This dependant claim is irrelevant if a method, not anticipated by Claim 1, is used.
3	D(1or2)					•	This dependant claim is irrelevant if a method, not anticipated by Claim 1, is used.
4	I					•	Ibid. Claim 1