

QUALIFICATIONS VALIDATED
ANNUALLY

ADVANCED MICROCIRCUITS
QML-38535-2
21 August 1992
SUPERSEDING
QML-38535-1
25 May 1990

QUALIFIED MANUFACTURERS LIST
OF
ADVANCED MICROCIRCUITS
QUALIFIED UNDER MILITARY SPECIFICATION
MIL-I-38535
MICROCIRCUITS MANUFACTURING
GENERAL REQUIREMENTS FOR

FSC 5962

This list has been prepared for use by or for the Government in the acquisition of advanced microcircuit products covered by Specification MIL-I-38535. Listing of a product is not intended to and does not connote indorsement of the product by the Department of Defense. This list is subject to change without notice; revision or amendment of this list will be issued as necessary. The listing of a product does not in any way release the supplier from compliance with the individual item specification requirements.

THE ACTIVITY RESPONSIBLE FOR THIS QML IS THE UNITED STATES AIR FORCE, CODE 17. The activity designated as agent for all contacts relative to this QML is the Defense Electronics Supply Center (DESC-EQ), Dayton, OH 45444-5270.

If a manufacturer desires to have test data considered for qualification, he must be certified and perform all required qualification tests; the qualification sample must be produced under a valid authorization to test with DESC certified materials and manufacturing techniques; and he must comply with the requirements specified in MIL-I-38535 prior to the start of any testing.

The listing of microcircuit manufacturing lines in the QML 38535 applies only to products produced in the plant(s) specified herein. Therefore, only those products that have been manufactured, assembled, and tested within the United States and its territories, except as provided by international agreement establishing reciprocal and equivalent quality systems and procedures, can be supplied as qualified microcircuit QML devices.

Microcircuits manufactured, assembled, and tested in accordance with MIL-I-38535 shall bear the "QML" certification mark or the "Q" abbreviation. Products manufactured, assembled, and tested shall meet all the provisions of MIL-I-38535; and shall be manufactured on the DESC certified lines as indicated herein. The information contained in this QML reflects the actual manufacturing lines, materials, and manufacturing construction techniques of the particular test sample(s). Any product represented as being compliant shall be manufactured on the lines/flows using the material and manufacturing construction techniques listed herein, as is necessary to meet the requirements of the user. The user shall be responsible for determining if the QML listing is adequate to demonstrate capability for the intended application. Supplemental testing and listing can be accomplished by application and approval of DESC-EQ. Microcircuits are not limited to those listed. However, testing must be completed and approved before the product can be shipped or used in the intended application.

To obtain MIL-I-38535 qualified microcircuits, the procurement document must specify that the product be manufactured to MIL-I-38535, and be manufactured as outlined herein. Ordering data is contained in paragraph 6.1 of MIL-I-38535. All procurement documents shall meet the requirements of MIL-I-38535.

1 of 9
ADVANCED MICROCIRCUITS
QML-38535-2

AMSC N/A

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

MANUFACTURER 1/		CAGE CODE	SYMBOL CODE
AT&T MICROELECTRONICS 555 UNION BLVD ALLENTOWN, PA 18103		98379	CERU
TEST REPORT	PRODUCT CLASS DESIGNATOR	RADIATION HARDNESS LEVEL	TECHNOLOGY
QML001-1289 38535-51-92	Q	N/A	0.9 & 1.25 µm SLM AND DLM
			PRODUCT TYPE(S)
			ASICS FULL CUSTOM ASICS STANDARD CELL FPGA DSP
DESIGN CENTER		MASK DEVELOPMENT	
LOCATION: ALLENTOWN PA LINE: LAB 5285, DEPARTMENT 52845 FLOW: A91ALO741/A91AL1011		LOCATION: ALLENTOWN PA LINE: MASK SHOP - ALLENTOWN PA FLOW: SIF-5568	
WAFER FABRICATION OPERATION(S)			
LOCATION: ALLENTOWN PA LINE: MOS V FLOW: PFC-074-LOG 84, LOG 185, LOG 94 LOG 157		LOCATION: LINE: FLOW:	
ASSEMBLY OPERATION(S)			
LOCATION: ALLENTOWN PA LINE: JIT MOS CERAMIC ASSEMBLY FLOW: SIF-QMP3-FLOW		LOCATION: LINE: FLOW:	
TEST OPERATION(S)			
<u>ELECTRICAL</u> LOCATION: ALLENTOWN PA LINE: JIT MOS CERAMIC FLOW FLOW: SIF-QMP3-FLOW		<u>ENVIRONMENTAL</u> LOCATION: ALLENTOWN PA LINE: RELIABILITY LAB FLOW: SIF-QMP3-FLOW, IL-5337, SIF-IL5349 FLOW 2	
PACKAGE INFORMATION 2/			MISCELLANEOUS
PACKAGE TYPE	PGA	DIP	CHIP CARRIER
LEAD COUNT	133	28	132, 256
MATRIX SIZE	13 X 13	N/A	N/A
LEAD FINISH	GOLD	GOLD	GOLD
LEAD PITCH	0.100"	0.100"	0.205", 0.020"
SPECIFIC PRODUCT TYPE(S)			
STANDARDIZED MILITARY DRAWING PART NUMBER 3/	ESD CLASS	MANUFACTURER SIMILAR PART NUMBER 4/	PRODUCT DESCRIPTION 5/
5962-9070401QXX	1(1,4)	WE-DSP-16	16 BIT DIGITAL SIGNAL PROCESSOR
			SHIPPED
			NO

MANUFACTURER <u>1/</u>		CAGE CODE	SYMBOL CODE	
HONEYWELL INCORPORATED 12001 STATE HIGHWAY 55 PLYMOUTH, MN 55441		34168		
TEST REPORT	PRODUCT CLASS DESIGNATOR	RADIATION HARDNESS LEVEL	TECHNOLOGY	PRODUCT TYPE(S)
45-92 46-92	Q V	1 MEG	1.2 μm RICMOS III	CUSTOM AND SEMI-CUSTOM; MEMORY, LOGIC, AND STANDARD CELLS. ASICS
DESIGN CENTER			MASK DEVELOPMENT	
LOCATION: PLYMOUTH MN LINE: RICMOS III (Q AND V) FLOW: TQP-19005, REV- THIRD PARTY DESIGN CENTER APPROVED PROCEDURE: GMS-10026, REV- SEE PRODUCT DESCRIPTION FOR SPECIFIC THIRD PARTY DESIGN CENTERS IF UTILIZED IN PRODUCT DESIGN			LOCATION: PLYMOUTH MN LINE: RICMOS III (Q AND V) FLOW: TQP-19006, REV-	
WAFER FABRICATION OPERATION(S)				
LOCATION: PLYMOUTH MN LINE: RICMOS III 1.2 μm (Q AND V) FLOW: 22005911			LOCATION: LINE: FLOW:	
ASSEMBLY OPERATION(S)				
LOCATION: PLYMOUTH MN LINE: RICMOS III (Q AND V) FLOW: 22009590			LOCATION: LINE: FLOW:	
TEST OPERATION(S)				
<u>ELECTRICAL</u> LOCATION: PLYMOUTH MN LINE: RICMOS III (Q AND V) FLOW: TQP-19008, REV-			<u>ENVIRONMENTAL</u> LOCATION: PLYMOUTH MN LINE: RICMOS III (Q AND V) FLOW: TQP-19010, REV-	
PACKAGE INFORMATION <u>2/</u>				
PACKAGE TYPE	FLAT PACK	FLAT PACK		
LEAD COUNT	36	84		
MATRIX SIZE	N/A	N/A		
LEAD FINISH	GOLD	GOLD		
LEAD PITCH	25 MILS	40 MILS		
SPECIFIC PRODUCT TYPE(S)				
STANDARDIZED MILITARY DRAWING PART NUMBER <u>3/</u>	ESD CLASS	MANUFACTURER SIMILAR PART NUMBER <u>4/</u>	PRODUCT DESCRIPTION <u>5/</u>	SHIPPED
5962H92A0101QYX	1	1HK84	ASIC STANDARD CELL, SERIAL COMMUNICATIONS CONTROLLER (QUAL PART)	NO
SMD IN PROGRESS	3	HC6364/2XQHCT	8K X 8 SRAM (QUAL PART)	NO
SMD IN PROGRESS	3	HC6364/2XVHCT	8K X 8 SRAM	NO
SMD IN PROGRESS	3	HC6364/2XQHBT	8K X 8 SRAM	NO
SMD IN PROGRESS	3	HC6364/2XVHBT	8K X 8 SRAM	NO
SMD IN PROGRESS	3	HC6364/2XQHCC	8K X 8 SRAM	NO
SMD IN PROGRESS	3	HC6364/2XVHCC	8K X 8 SRAM	NO
SMD IN PROGRESS	3	HC6364/2XQHBC	8K X 8 SRAM	NO
SMD IN PROGRESS	3	HC6364/2XVHBC	8K X 8 SRAM	NO

MANUFACTURER <u>1/</u>		CAGE CODE	SYMBOL CODE	
IBM CORPORATION 9500 GODWIN DRIVE MANASSAS, VA 22110		52088		
TEST REPORT	PRODUCT CLASS DESIGNATOR	RADIATION HARDNESS LEVEL	TECHNOLOGY	PRODUCT TYPE(S)
19-92 32-92 20-92 21-92	Q V	2 MEG	1.0µm RHCOS 0.8µm RHCOS-E	SRAM CUSTOM LOGIC CELL LIBRARY MICROPROCESSOR GATE ARRAYS
DESIGN CENTER			MASK DEVELOPMENT	
LOCATION: MANASSAS VA LINE: VLSI FLOW: MIDS/MVISA QM PLAN DESIGN RULES			LOCATION: OUTSIDE LOCATION LINE: FLOW:	
WAFER FABRICATION OPERATION(S)				
LOCATION: MANASSAS VA LINE: IBM FSD VLSI 1.0 um RHCOS FLOW: Q.P. 163A937			LOCATION: MANASSAS VA LINE: IBM FSD VLSI 0.8 um RHCOS-E FLOW: Q.P. 163A937	
ASSEMBLY OPERATION(S)				
LOCATION: MANASSAS VA LINE: IBM FSD VLSI FLOW: 163A799			LOCATION: MANASSAS VA LINE: IBM FSD VLSI FLOW: 163A633	
TEST OPERATION(S)				
ELECTRICAL LOCATION: MANASSAS VA LINE: IBM FSD VLSI FLOW: QM PLAN PARAGRAPH 4.5.14			ENVIRONMENTAL LOCATION: MANASSAS VA LINE: IBM FSD VLSI FLOW: QM PLAN PARAGRAPH 4.5	
PACKAGE INFORMATION <u>2/</u>				MISCELLANEOUS
TYPE	FLAT PACK	FLAT PACK		
LEAD COUNT	40	220		
MATRIX SIZE	N/A			
LEAD FINISH	GOLD	GOLD		
LEAD PITCH	0.25	0.635		
SPECIFIC PRODUCT TYPE(S)				
STANDARDIZED MILITARY DRAWING PART NUMBER <u>3/</u>	ESD CLASS	MANUFACTURER SIMILAR PART NUMBER <u>4/</u>	PRODUCT DESCRIPTION <u>5/</u>	SHIPPED
SMD IN PROGRESS	1	146A254	64K X 1 SRAM (BASIC PART)	NO
SMD IN PROGRESS	1	146A254-1	64K X 1 SRAM (QUALIFICATION PART)	NO
SMD IN PROGRESS	1	161A573	8K X 8 SRAM (BASIC PART)	NO
SMD IN PROGRESS	1	161A573-1	8K X 8 SRAM (QUALIFICATION PART)	NO
SMD IN PROGRESS	1	165A774	FXP-FIXED POINT PROCESSOR	NO
SMD IN PROGRESS	2	167A689	32K X 8 SRAM (BASIC PART)	NO
SMD IN PROGRESS	2	167A689-1	32K X 8 SRAM (QUALIFICATION PART)	NO
SMD IN PROGRESS	1	165A982	FLP-FLOATING POINT PROCESSOR	NO
SMD IN PROGRESS	1	176A685	AP1-ADDRESS PROCESSOR 1	NO
SMD IN PROGRESS	1	165A984	AP2-ADDRESS PROCESSOR 2	NO
SMD IN PROGRESS	1	167A066	DxMD DIAGNOSTIC MAINTENANCE UNIT	NO

MANUFACTURER 1/		CAGE CODE	SYMBOL CODE	
INTEL CORPORATION 5000 WEST CHANDLER BOULEVARD CHANDLER, AZ 85226		34649	CECC	
TEST REPORT	PRODUCT CLASS DESIGNATOR	RADIATION HARDNESS LEVEL	TECHNOLOGY	
5-19-90	Q	N/A	1.0µm CMOS	
			PRODUCT TYPE	
			MICROPROCESSORS PERIPHERALS	
DESIGN CENTER		MASK DEVELOPMENT		
LOCATION: SANTA CLARA CA LINE: STD PRODUCTS FLOW: PRODUCTS		LOCATION: OUTSIDE LOCATION LINE: FLOW:		
WAFER FABRICATION OPERATION(S)				
LOCATION: RIO RANCHO AZ LINE: FAB 9.1 FLOW: CMOS IV		LOCATION: LINE: FLOW:		
ASSEMBLY OPERATION(S)				
LOCATION: CHANDLER AZ LINE: A-4 FLOW: 15-081		LOCATION: LINE: FLOW:		
TEST OPERATION(S)				
<u>ELECTRICAL</u> LOCATION: ALOHA OR, CHANDLER AZ LINE: T-7, T-16 FLOW: 95-XXXX		<u>ENVIRONMENTAL</u> LOCATION: CHANDLER AZ LINE: T-MIL FLOW: 89-0065-0258		
PACKAGE INFORMATION 2/			MISCELLANEOUS	
TYPE	PIN GRID ARRAY	FLAT PACK		
LEAD COUNT	68-208	69-196		
MATRIX SIZE				
LEAD FINISH	SOLDER	SOLDER		
LEAD PITCH	100 MIL	25 MIL		
SPECIFIC PRODUCT TYPE(S)				
STANDARDIZED MILITARY DRAWING PART NUMBER 3/	ESD CLASS	MANUFACTURER SIMILAR PART NUMBER 4/	PRODUCT DESCRIPTION 5/	SHIPPED
5962-8766803QYX	1	MQ80386Q-20/Q	32 BIT MICROPROCESSOR	NO
5962-8766804QYX	1	MQ80386Q-25/Q	32 BIT MICROPROCESSOR	NO
5962-8953402QYX	1	MQ80387Q-20/Q	MATHEMATICAL COPROCESSOR	NO
5962-8953403QYX	1	MQ80387Q-25/Q	MATHEMATICAL COPROCESSOR	NO

NOTES:

1/ Manufacturer listed flows are considered proprietary. Listings are to be used as a guideline for customers and should not be considered strict limitations on the manufacturer's ability to produce product outside the QML envelope. The QML can be expanded as the manufacturer produces product to new orders. Product cannot be shipped unless covered by the QML envelope.

2/ Package lead counts are listed by the maximum number of leads covered by the qualification. If the manufacturer's package outline drawing is covered by appendix C of MIL-M-38510, then the case outline letter will be listed.

3/ The manufacturer has certified that the advanced microcircuits listed were/are being built, tested, and shipped, using the certified/qualified lines/flows, processes, and materials, and as defined by a completed Standardized Military Drawing (SMD) are in full compliance with MIL-I-38535.

4/ Caution. Do not use this number for item acquisition. Items acquired to this number are NOT QML devices and may not satisfy the performance requirements of this drawing.

5/ All devices are in the military temperature range -55° to $+125^{\circ}\text{C}$, unless otherwise specified.

TABLE 1. - CROSS REFERENCE

The products listed herein are in sequential order by military part number for user convenience.

STANDARDIZED MILITARY DRAWING PART NUMBER <u>3/</u>	MANUFACTURER SIMILAR PART NUMBER <u>4/</u>	PRODUCT DESCRIPTION <u>5/</u>	SOURCE(S)
5962-8766803QXX	MQ80386Q-20/Q	32 BIT MICROPROCESSOR	INTEL
5962-8766804QXX	MQ80386Q-25/Q	32 BIT MICROPROCESSOR	INTEL
5962-8953402QYX	MQ80387Q-20/Q	MATHEMATICAL CO-PROCESSOR	INTEL
5962-8953403QYX	MQ80387Q-25/Q	MATHEMATICAL CO-PROCESSOR	INTEL
5962-9070401QXX	WE-DSP-16	16 BIT DIGITAL SIGNAL PROCESSOR	AT&T
5962H92A0101QYX	1HK84	ASIC STANDARD CELL, SERIAL COMMUNICATIONS CONTROLLER (QUAL PART)	HONEYWELL
SMD IN PROGRESS	HC6364/2XQHBT	8K X 8 SRAM	HONEYWELL
SMD IN PROGRESS	HC6364/2XVHBT	8K X 8 SRAM	HONEYWELL
SMD IN PROGRESS	HC6364/2XQHCT	8K X 8 SRAM (QUAL PART)	HONEYWELL
SMD IN PROGRESS	HC6364/2XVHCT	8K X 8 SRAM	HONEYWELL
SMD IN PROGRESS	HC6364/2XQHCC	8K X 8 SRAM	HONEYWELL
SMD IN PROGRESS	HC6364/2XVHCC	8K X 8 SRAM	HONEYWELL
SMD IN PROGRESS	HC6364/2XQHBC	8K X 8 SRAM	HONEYWELL
SMD IN PROGRESS	HC6364/2XVHBC	8K X 8 SRAM	HONEYWELL
SMD IN PROGRESS	146A894	8K X 8 SRAM (BASIC PART)	IBM
SMD IN PROGRESS	146A894-1	8K X 8 SRAM (QUAL PART)	IBM
SMD IN PROGRESS	146A891	64K X 1 SRAM (BASIC PART)	IBM
SMD IN PROGRESS	146A891-1	64K X 1 SRAM (QUAL PART)	IBM
SMD IN PROGRESS	165A774-1	FXP FIXED POINT PROCESSOR	IBM
SMD IN PROGRESS	167A690	32K X 8 SRAM (BASIC PART)	IBM
SMD IN PROGRESS	167A690-1	32K X 8 SRAM (QUAL PART)	IBM
SMD IN PROGRESS	165A982	FLP-FLOATING POINT PROCESSOR	IBM
SMD IN PROGRESS	176A685	AP1-ADDRESS PROCESSOR 1	IBM
SMD IN PROGRESS	165A984	AP2-ADDRESS PROCESSOR 2	IBM

TABLE 1. - CROSS REFERENCE (CONTINUED)

STANDARDIZED MILITARY DRAWING PART NUMBER <u>3/</u>	MANUFACTURER SIMILAR PART NUMBER <u>4/</u>	PRODUCT DESCRIPTION <u>5/</u>	SOURCE(S)
SMD IN PROGRESS	167A066	DxMD DIAGNOSTIC MAINTENANCE UNIT	IBM

TABLE 2. - APPROVED SOURCE MASTER PRODUCT LISTING

PRODUCT DESCRIPTION <u>5/</u>	STANDARDIZED MILITARY DRAWING PART NUMBER <u>3/</u>	MANUFACTURER SIMILAR PART NUMBER <u>4/</u>	SOURCE(S)
32 BIT MICROPROCESSOR	5962-8766803QXX	MQ80386Q-20/Q	INTEL
32 BIT MICROPROCESSOR	5962-8766804QXX	MQ80386Q-25/Q	INTEL
MATHEMATICAL CO-PROCESSOR	5962-8953402QYX	MQ80387Q-20/Q	INTEL
MATHEMATICAL CO-PROCESSOR	5962-8953403QYX	MQ80387Q-25/Q	INTEL
16 BIT DIGITAL SIGNAL PROCESSOR	5962-9070401QXX	WE-DSP-16	AT&T
ASIC STANDARD CELL, SERIAL COMMUNICATIONS CONTROLLER (QUAL PARK)	5962H92A0101QYX	1HK84	HONEYWELL