

EQUIPMENT DESCRIPTION (UNIT)	QTY.	ELECTRICAL REQUIREMENTS Δ Δ										AIR CONDITIONING REQUIREMENTS Δ			EST PER UNIT WEIGHT LB. (KG)	SIZE IN. (mm)		
		VOLTAGE	PHASE	Hz	WIRES	(PER UNIT)			POWER FACTOR	CIRCUIT SIZE Δ	RECEPT TYPE Δ	(PER UNIT)				HEIGHT	WIDTH	DEPTH
						KVA	KW	KW IDLE				KBTU/HR	KW	TONS				
SGI ICE XA E-RACKS 001-028	28	456 to 504	3	47 to 63	5	(59.18) 1657.04	(58.59) 1640.52	(22.85) 639.80	.99	60 AMP 2 EACH RACK Δ	IEC60309 60 AMP 2 EACH RACK Δ	AIR CONDITIONING-NEGLECTIBLE HEAT DIRECTED TO WATER COOLED COOLING RACK & CDU	2395 (1087)	93.00 (2362)	23.62 (600)	60.00 (1524)		
SGI ICE XA COOLING RACKS CR01-CR14	14	456 to 504	3	47 to 63	4	(4.89) 68.46	(4.50) 63.00	(4.50) 63.00	.92	30 AMP 1 EACH RACK Δ	IEC60309 30 AMP 1 EACH RACK Δ	AIR CONDITIONING-NEGLECTIBLE SEE NOTE 7 FOR WATER COOLING REQUIREMENTS	1400 (635)	93.00 (2362)	23.62 (600)	60.00 (1524)		
SGI ICE XA COOLING DISTRIBUTION UNITS (CDU) DU01-DU07	7	456 to 504	3	47 to 63	4	(6.52) 45.64	(4.30) 30.10	(4.30) 30.10	.66	20 AMP 1 EACH RACK Δ	IEC60309 20 AMP 1 EACH RACK Δ	(2.05) 14.35	(0.60) 4.20	(0.17) 1.19	825 (374)	74.20 (1885)	23.62 (600)	39.37 (1000)
SGI ICE X I/O EXPANSION D-RACK 101	1	180 to 264	3	47 to 63	4	6.00	5.88	5.88	.98	60 AMP 2 EACH RACK Δ	IEC60309 60 AMP 2 EACH RACK Δ	20.06	5.88	1.67	1089 (494)	78.75 (2000)	24.00 (610)	49.52 (1258)
SGI ICE X I/O EXPANSION D-RACK 102	1	180 to 264	3	47 to 63	4	8.81	8.63	8.63	.98	60 AMP 2 EACH RACK Δ	IEC60309 60 AMP 2 EACH RACK Δ	29.45	8.63	2.46	1208 (548)	78.75 (2000)	24.00 (610)	49.52 (1258)
SYSTEM TOTAL						1785.95	1748.13	747.41		SYSTEM TOTAL		63.86	18.71	5.32				

1. THIS DOCUMENT IDENTIFIES THE GENERAL POWER, COOLING, AND ENVIRONMENTAL REQUIREMENTS ASSOCIATED WITH PREPARING A FACILITY FOR THE INSTALLATION OF A SILICON GRAPHICS SCALEABLE NODE COMPUTER SYSTEM. FOR ADDITIONAL QUESTIONS E-MAIL "site@sgi.com".

Δ FIGURES DISPLAYED IN THE "(PER UNIT)" COLUMN OF THE ELECTRICAL AND AIR CONDITIONING REQUIREMENTS COLUMNS REPRESENT THE MAXIMUM POWER AND COOLING REQUIREMENTS BASED ON THE CONFIGURATION LISTED IN THE CONFIGURATION TABLE BELOW WHILE RUNNING AN OPTIMIZED VERSION OF THE LINPACK BENCHMARK UNDER NORMAL OPERATING CONDITIONS [AMBIENT 72°F (22°C), ELEVATION UP TO 5000 FT (1524 M) MSL]. ACTUAL POWER & COOLING LOAD MAY VARY BASED ON THE CUSTOMER'S SPECIFIC APPLICATION.

Δ ELECTRICAL REQUIREMENTS
FACILITY WIRING MUST BE SIZED IN ACCORDANCE WITH THE ASSOCIATED VALUES DISPLAYED IN THE ELECTRICAL REQUIREMENTS SECTION OF THE CHART. ALL ELECTRICAL WIRING MUST CONFORM TO LOCAL AND NATIONAL CODES.

Δ OVERCURRENT PROTECTION
SILICON GRAPHICS REQUIRES PRIMARY CIRCUITS SUPPLYING POWER TO SILICON GRAPHICS EQUIPMENT BE PROTECTED AGAINST OVERCURRENTS, SHORT CIRCUITS, AND EARTH FAULTS. SILICON GRAPHICS RECOMMENDS CIRCUITS SUPPLYING POWER TO SILICON GRAPHICS EQUIPMENT BE PROTECTED WITH CIRCUIT BREAKERS SIZED IN ACCORDANCE WITH THE AMPERAGE RATING DISPLAYED ON THE CHART.

Δ EQUIPMENT POWER CONNECTION
NUMBERS IN THE "RECEPTACLE TYPE" COLUMN AND NOTE 6 ARE NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA) REFERENCE NUMBERS (UNLESS OTHERWISE NOTED) WHICH IDENTIFY THE CUSTOMER SUPPLIED MATING BOX MOUNTED RECEPTACLES. AT THE CUSTOMERS OPTION EQUIVALENT IN-LINE CORD CONNECTION RECEPTACLES MAY BE UTILIZED IN LIEU OF THE BOX MOUNTED RECEPTACLES. THE MAIN INPUT POWER PLUGS FOR THE ICE XA E-RACKS AND ICE XA COOLING RACKS ARE CONSIDERED DISCONNECT DEVICES. THE CUSTOMER SUPPLIED MATING RECEPTALES SHALL BE INSTALLED WITHIN 4 FEET (1.2 M) OF EACH ASSOCIATED FLOOR CUTOUT AND SHALL BE EASILY ACCESSIBLE.

Δ SEE THE FOLLOWING TABLE FOR CIRCUIT REQUIREMENTS.

DESTINATION	INPUT VOLTAGE	(QTY) RECEPTACLES REQUIRED FOR EACH ICE XA E-RACK	(QTY) RECEPTACLES REQUIRED FOR EACH ICE XA COOLING RACK	(QTY) RECEPTACLES REQUIRED FOR EACH SGI ICE XA CDU
N. AMERICA	3 PHASE, 456-504 VAC	(2) 60 AMP, 5-WIRE, IEC60309 TYPE (HUBBELL HBL560C7W OR EQUIV.)	(1) 30 AMP, 4-WIRE, IEC60309 TYPE (HUBBELL HBL430C7W OR EQUIV.)	(1) 20 AMP, 4-WIRE, IEC60309 TYPE (HUBBELL HBL420C7W OR EQUIV.)

DESTINATION	INPUT VOLTAGE	(QTY) RECEPTACLES REQUIRED FOR EACH SGI I/O EXPANSION D-RACK
N. AMERICA	3 PHASE, 180-264 VAC	(2) 60 AMP, 4-WIRE, IEC60309 TYPE (HUBBELL HBL460C9W OR EQUIV.)

NOTES CONTINUED ON SHEET 2 OF 2

B	1)ADDED NCAR MGMT NODES TO I/O RACK 102 & REDISTRIBUTED EQUIPMENT IN RACKS 2)POWER FACTOR FOR CDU WAS LISTED .92 3)ADDED NOMENCLATURE TO IDENTIFY QTY CIRCUITS PER RACK 4)ADDED COLUMN FOR IDLE POWER 5)DELTA T FOR COOLING RACK WAS LISTED AS 12F	BRIAN S.	04-28-16
REVISION	DESCRIPTION OF REVISION	APPROVED	DATE
sgi Site Engineering Department 890 Industrial Boulevard Chippewa Falls, WI 54729		phone: (715)726-2820 e-mail: site@sgi.com http://www.sgi.com	
MACHINE UNIT SPECIFICATION 28 SGI ICE XA E-RACKS 1008 IP125 (HAWKINS) C-BLADES 8064 SOCKETS/145152 CORES-313344GB 14 SGI ICE XA COOLING RACKS 7 SGI ICE XA COOLING DISTRIBUTION UNITS(CDU) 2 SGI I/O EXPANSION D-RACKS (AIR COOLED OPTION) NCAR (CHEYENNE)		DRAWN BY: BRIAN S. APPROVED BY: BRIAN S. APPROVAL DATE: 02-04-16 DRAWING SCALE: NONE	
		DRAWING NUMBER	REVISION
		15-1377	B

NOTES CONTINUED FROM SHEET 1 OF 2

7. COOLING WATER REQUIREMENTS

EACH ICE XA COOLING RACK AND ICE XA CDU REQUIRES A CUSTOMER SUPPLIED SOURCE OF CLEAN COOLING WATER. THE ICE XA COOLING RACKS AND ICE XA CDUs WILL OPERATE ON COOLING WATER SUPPLY TEMPERATURES FROM 45°F (7°C) TO 90°F (32°C). FOR THE SYSTEM CONFIGURED ON THIS DOCUMENT. THE HEAT REJECTION TO WATER, WATER FLOW RATE, AND PRESSURE DROP VALUES ARE LISTED IN THE TABLE BELOW. THESE VALUES ARE BASED ON 100% WATER AT A SUPPLY TEMPERATURE OF 90°F (32°C).

BASED ON 90°F(32°C) WATER SUPPLY TEMP	HEAT REJECTION TO WATER		WATER FLOW RATE		PRESSURE DROP (MAXIMUM)		WATER DELTA T ACROSS EACH RACK
	KBTU/HR	TONS	GPM	M ³ /HR	PSI	KPA	
EACH ICE XA COOLING RACK CR01-CR14	112.76	9.40	17.35	3.94	20	138	13°F(7.2°C)
EACH ICE XA CDU DU01-DU07	617.40	51.45	95.00	21.57	20	138	13°F(7.2°C)
SYSTEM TOTAL	5900.44	491.75	907.90	206.15			

CAUTION: WATER FLOW AND PRESSURE DROP VALUES WILL DIFFER FOR TREATED WATER (i.e. ANTIFREEZE, CORROSION INHIBITORS, ETC.) DEPENDING ON THE PERCENTAGE (MAXIMUM 30% BY VOLUME) OF TREATMENT IN THE SOLUTION. WATER FLOW AND PRESSURE DROP VALUES WILL ALSO DIFFER WITH THE TEMPERATURE AND PRESSURE OF THE WATER SUPPLY. WATER PRESSURE MUST BE LIMITED TO 100 PSIG (690 kPa) MAXIMUM.

8. MAXIMUM ENVIRONMENTAL REQUIREMENTS:

TEMPERATURE:	41-95°F (5-35°C) < 5000 ft (1524 m) MEAN SEA LEVEL 41-86°F (5-30°C) 5000-10000 ft (1524-3048 m)	TEMPERATURE RATE OF CHANGE MUST NOT EXCEED 18°F/HOUR (10°C/HOUR)
HUMIDITY:	20% TO 80% NON-CONDENSING	HUMIDITY RATE OF CHANGE MUST NOT EXCEED 10% RELATIVE HUMIDITY/HOUR
	OPTIMAL OPERATING	RECOMMENDED RANGE (ASHRAE TC9.9 2011 THERMAL GUIDELINES)
TEMPERATURE:	72°F (22°C)	64°F TO 81°F (18°C TO 27°C)
HUMIDITY:	45% NON-CONDENSING	42°F (5.5°C) DEWPOINT TO 60%RH AND 59°F (15°C) DEWPOINT, NON CONDENSING

CONFIGURATION TABLES:

EACH ICE XA E-RACK 001-010 & 017-028

QUANTITY OF BLADE SHELVES	4
QUANTITY OF COMPUTE BLADES	36 HAWKINS
QUANTITY OF SOCKETS/CORES	288/5184
PROCESSOR TYPE	BROADWELL 18 CORE, 2.3GHZ 145W
QUANTITY OF MEMORY	9216 GB
DIMM TYPE	8 GB
QUANTITY OF DRIVES	0
QUANTITY OF FABRIC SWITCHES	8 PREMIUM EDR

EACH ICE XA E-RACK 011-016


QUANTITY OF BLADE SHELVES	4
QUANTITY OF COMPUTE BLADES	36 HAWKINS
QUANTITY OF SOCKETS/CORES	288/5184
PROCESSOR TYPE	BROADWELL 18 CORE, 2.3GHZ 145W
QUANTITY OF MEMORY	18432 GB
DIMM TYPE	16 GB
QUANTITY OF DRIVES	0
QUANTITY OF FABRIC SWITCHES	8 PREMIUM EDR

ICE XA I/O EXPANSION D-RACK 101

QUANTITY OF LEAD NODES (C1104-GP2)	14 (168 CORES-1792GB)
QUANTITY OF SWITCHES	10-48 PORT ETHERNET
QUANTITY OF REDUNDANT POWER UNITS (FOR SWITCHES)	2

ICE XA I/O EXPANSION D-RACK 102

QUANTITY OF NCAR MGMT NODES (SM 6028-WTR)	3 (48 CORES-192GB)
QUANTITY OF ADMIN NODES (C1104-GP2)	1 (12 CORES-128GB)
QUANTITY OF ADMIN HA NODES (C1104-GP2)	1 (12 CORES-128GB)
QUANTITY OF ADMIN STORAGE (IS5112)	1 CONTROLLER/DISK ENCLOSURE 6-2TB SAS DRIVES
QUANTITY OF LOGIN NODES (C1104-GP2)	6 (216 CORES-1536GB)
QUANTITY OF GATEWAY NODES (C1104-GP2)	2 (72 CORES-256GB)
QUANTITY OF BATCH NODES (C1104-GP2)	4 (144 CORES-512GB)
QUANTITY OF SYSTEM CONSOLES	1

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