

Applied Materials Confidential/ [REDACTED]

SPEC ID = 2211054, SPEC CTR = 9.
 For reference only. For latest spec, refer to database.
 Shaded and strikethrough items will be altered by NSR listed.
 Non-default items are italicized.

**EPI SYSTEM SPECIFICATION
 CENTURA DIVISIONAL**

**FAB 1
 PROJECT Z11241**

Spec Information

Spec Information

Specification Title	[REDACTED] CENTURA EPI PRONTO
Specification Revision	9
Specification Filter Date	6/7/2021
Date Last Modified	6/7/2021
Last Modified by	
Operational Status	Preconfig-Submit [IBSS-RPD]

System Specification 1

System Overview

<u>General Information</u>	<u>Selected Option</u>	<u>Part# or NSR#</u>	<u>Part or NSR Description</u>	<u>Note #</u>
Customer Name	[REDACTED]			
Customer Number	[REDACTED]			
Fab Name	FAB 1			
Unit Number	[REDACTED]			
Fab Region	[REDACTED]			
Forecast or Order	REFURBISHED SYSTEM ORDER			
Technology	EPI			
Platform Type	CENTURA DIVISIONAL			
ZMAT ID	[REDACTED]			
Application	N/A			
Project Package Number	[REDACTED]			
Opportunity Number	[REDACTED]			
Sales Engineer Name	[REDACTED]			
Sales Engineer Phone Number	[REDACTED]			
Sales Engineer Pager Number	[REDACTED]			
Business Mgr Id	[REDACTED]			
Sales Order Number	[REDACTED]			
Quotation Number	[REDACTED]			

<u>Wafer Specification</u>	<u>Selected Option</u>	<u>Part# or NSR#</u>	<u>Part or NSR Description</u>	<u>Note #</u>
Wafer Size	150mm			
Wafer Shape	-			

<u>Chamber Type / Location</u>	<u>Selected Option</u>	<u>Part# or NSR#</u>	<u>Part or NSR Description</u>	<u>Note #</u>
Position A	(PA) PRONTO ATMOSPHERIC EPI			
Position B	(PA) PRONTO ATMOSPHERIC EPI			
Position C	(PA) PRONTO ATMOSPHERIC EPI			

Position D EMPTY
 Position E EMPTY
 Position F (CA) SINGLE SLOT COOLDOWN

Epi Centura System

<u>General Information</u>	<u>Selected Option</u>	<u>Part# or NSR#</u>	<u>Part or NSR Description</u>	<u>Note #</u>
Product Marketing Engineer Project Manager Configuration Engineer Manufacturing Engineer				

Customer Fab Options

<u>Electrical Requirements</u>	<u>Selected Option</u>	<u>Part# or NSR#</u>	<u>Part or NSR Description</u>	<u>Note #</u>
Line Voltage	480V WITH TRANSFORMER			
Line Frequency	60 HZ			
Line Amperage	600A			

<u>System Safety</u>	<u>Selected Option</u>	<u>Part# or NSR#</u>	<u>Part or NSR Description</u>	<u>Note #</u>
CE Mark	NO			
EMO Switch Type	TURN TO RELEASE EMO ETI COMPLIANT			
EMO Guard Ring	INCLUDED			
System Labels	ENGLISH WITH CHINESE NON SIMPLIFIED			
EU Safety Manual Language	NOT APPLICABLE			

(A) - (PA) PRONTO ATMOSPHERIC

<u>Prono Atmospheric Chamber</u>	<u>Selected Option</u>	<u>Part# or NSR#</u>	<u>Part or NSR Description</u>	<u>Note #</u>
Upper Dome Temperature CLC	YES			
SWmonitor Quartz Pyrometer Kit	YES			
Exhaust Inserts	QUARTZ INSERTS			
Susceptor	MESH NCP			
Brand	COVALENT MATERIALS			
Lower Liners	VENTED			
Susceptor Support Shaft	NCP SUSCEPTOR SUPPORT SHAFT	40223093-00	CIP Shaft	Note# 1
Tips	SILICON CARBIDE REMOVABLE TIPS			
Exhaust Deposit Reduction	NO	40221133-00	Rotation purge 5SLM	
Wafer Susceptor Lift Type	MOTORIZED LIFT			
Motorized Lift	YES			

(B) - (PA) PRONTO ATMOSPHERIC

<u>Prono Atmospheric Chamber</u>	<u>Selected Option</u>	<u>Part# or NSR#</u>	<u>Part or NSR Description</u>	<u>Note #</u>
Upper Dome Temperature CLC	YES			
SWmonitor Quartz Pyrometer Kit	YES			
Exhaust Inserts	QUARTZ INSERTS			
Susceptor	MESH NCP			
Brand	COVALENT MATERIALS			
Lower Liners	VENTED			
Susceptor Support Shaft	NCP SUSCEPTOR SUPPORT SHAFT	Part of 40223093-00	CIP shaft	Note# 2
Tips				

	SILICON CARBIDE REMOVABLE TIPS		
Exhaust Deposit Reduction	NO	Part of	Rotation purge
Wafer Susceptor Lift Type	MOTORIZED LIFT	40221133-00	
Motorized Lift	YES		

(C) - (PA) PRONTO ATMOSPHERIC

<u>Pronto Atmospheric Chamber</u>	<u>Selected Option</u>	<u>Part# or NSR#</u>	<u>Part or NSR Description</u>	<u>Note #</u>
Upper Dome Temperature CLC	YES			
SWmonitor Quartz Pyrometer Kit	YES			
Exhaust Inserts	QUARTZ INSERTS			
Susceptor	MESH NCP			
Brand	COVALENT MATERIALS			
Lower Liners	VENTED			
Susceptor Support Shaft	NCP SUSCEPTOR SUPPORT SHAFT	Part of	CJP shaft	Note# 3
Tips	SILICON CARBIDE REMOVABLE TIPS			
Exhaust Deposit Reduction	NO	Part of	Rotation Purge	
Wafer Susceptor Lift Type	MOTORIZED LIFT	40221133-00		
Motorized Lift	YES			

Gas Delivery Options

<u>Epi Gas Delivery Options</u>	<u>Selected Option</u>	<u>Part# or NSR#</u>	<u>Part or NSR Description</u>	<u>Note #</u>
Mixed Dopant 2	YES			
Fast Mixer Stabilization	YES			
Mixed Dopant 2 Ready	YES			
Gas Panel Exhaust	CHAMBER B SIDE			
MFC	STEC Z500			
Pump Purge	YES			
Regulators and Transducers	REGULATORS AND TRANSDUCERS			
Gas Distribution Type	MULTIPLE LINE DROP			

Gasline Information

<u>Main Pallet</u>	<u>Selected Option</u>	<u>Part# or NSR#</u>	<u>Part or NSR Description</u>	<u>Note #</u>
Line 1 Process Gas	DOP 2			
Line 1 Cal Gas	H2			
Line 1 MFC Size	500 SCCM			
Line 2 Process Gas	DOP 1			
Line 2 Cal Gas	H2			
Line 2 MFC Size	500 SCCM			
Line 3 Process Gas	H2			
Line 3 Cal Gas	H2			
Line 3 MFC Size	20 SLM			
Line 4 Process Gas	H2			
Line 4 Cal Gas	H2			
Line 4 MFC Size	20 SLM			

<u>Pallet (A) - Pronto Atmospheric</u>	<u>Selected Option</u>	<u>Part# or NSR#</u>	<u>Part or NSR Description</u>	<u>Note #</u>
Line 1 Process Gas	H2			
Line 1 Cal Gas	H2			
Line 1 MFC Size	20 SLM/NO	40218487-00	Chamber slit purge 40SLM	
Line 2 Process Gas	H2			

Line 2 Cal Gas	H2
Line 2 MFC Size	100 SLM N/O
Line 3 Process Gas	HCL
Line 3 Cal Gas	HCL
Line 3 MFC Size	20 SLM
Line 4 Process Gas	NONE
Line 4 Cal Gas	NONE
Line 4 MFC Size	NONE
Line 5 Process Gas	NONE
Line 5 Cal Gas	NONE
Line 5 MFC Size	NONE
Line 6 Process Gas	HCL
Line 6 Cal Gas	HCL
Line 6 MFC Size	3 SLM
Line 7 Process Gas	MIX DOP 1 & 2
Line 7 Cal Gas	H2
Line 7 MFC Size	300 SCCM
Line 8 Process Gas	HCL
Line 8 Cal Gas	HCL
Line 8 MFC Size	1 SLM
Line 9 Process Gas	SiHCL3
Line 9 Cal Gas	H2
Line 9 MFC Size	30 SLM
Line 10 Process Gas	AUX DOP
Line 10 Cal Gas	H2
Line 10 MFC Size	30 SCCM
Chamber Inject Type	INNER/OUTER

Pallet (B) - Pronto Atmospheric

Line 1 Process Gas	H2
Line 1 Cal Gas	H2
Line 1 MFC Size	30 SLM N/O
Line 2 Process Gas	H2
Line 2 Cal Gas	H2
Line 2 MFC Size	100 SLM N/O
Line 3 Process Gas	HCL
Line 3 Cal Gas	HCL
Line 3 MFC Size	20 SLM
Line 4 Process Gas	NONE
Line 4 Cal Gas	NONE
Line 4 MFC Size	NONE
Line 5 Process Gas	NONE
Line 5 Cal Gas	NONE
Line 5 MFC Size	NONE
Line 6 Process Gas	HCL
Line 6 Cal Gas	HCL
Line 6 MFC Size	3 SLM
Line 7 Process Gas	MIX DOP 1 & 2
Line 7 Cal Gas	H2
Line 7 MFC Size	300 SCCM
Line 8 Process Gas	HCL
Line 8 Cal Gas	HCL
Line 8 MFC Size	1 SLM
Line 9 Process Gas	SiHCL3
Line 9 Cal Gas	H2
Line 9 MFC Size	30 SLM
Line 10 Process Gas	AUX DOP
Line 10 Cal Gas	H2
Line 10 MFC Size	30 SCCM
Chamber Inject Type	INNER/OUTER

Pallet (C) - Pronto Atmospheric

Line 1 Process Gas	H2
Line 1 Cal Gas	H2

Selected Option

Part# or NSR#

Part or NSR Description

Note #

Part of Chamber slll purge 40SLM
40218487-00

Line 1 MFC Size	20 SLM N/O	Part of	Chamber slit purge 40SLM
Line 2 Process Gas	H2	40216487-00	
Line 2 Cal Gas	H2		
Line 2 MFC Size	100 SLM N/O		
Line 3 Process Gas	HCL		
Line 3 Cal Gas	HCL		
Line 3 MFC Size	20 SLM		
Line 4 Process Gas	NONE		
Line 4 Cal Gas	NONE		
Line 4 MFC Size	NONE		
Line 5 Process Gas	NONE		
Line 5 Cal Gas	NONE		
Line 5 MFC Size	NONE		
Line 6 Process Gas	HCL		
Line 6 Cal Gas	HCL		
Line 6 MFC Size	3 SLM		
Line 7 Process Gas	MIX DOP 1 & 2		
Line 7 Cal Gas	H2		
Line 7 MFC Size	300 SCCM		
Line 8 Process Gas	HCL		
Line 8 Cal Gas	HCL		
Line 8 MFC Size	1 SLM		
Line 9 Process Gas	SiHCL3		
Line 9 Cal Gas	H2		
Line 9 MFC Size	30 SLM		
Line 10 Process Gas	AUX DOP		
Line 10 Cal Gas	H2		
Line 10 MFC Size	30 SCCM		
Chamber Inject Type	INNER/OUTER		

<u>Pallet (ID) - Empty</u>	<u>Selected Option</u>	<u>Part# or NSR#</u>	<u>Part or NSR Description</u>	<u>Note #</u>
Line 1 Process Gas	NOT APPLICABLE			
Line 1 Cal Gas	NOT APPLICABLE			
Line 1 MFC Size	NOT APPLICABLE			
Line 2 Process Gas	NOT APPLICABLE			
Line 2 Cal Gas	NOT APPLICABLE			
Line 2 MFC Size	NOT APPLICABLE			
Line 3 Process Gas	NOT APPLICABLE			
Line 3 Cal Gas	NOT APPLICABLE			
Line 3 MFC Size	NOT APPLICABLE			
Line 4 Process Gas	NOT APPLICABLE			
Line 4 Cal Gas	NOT APPLICABLE			
Line 4 MFC Size	NOT APPLICABLE			
Line 5 Process Gas	NOT APPLICABLE			
Line 5 Cal Gas	NOT APPLICABLE			
Line 5 MFC Size	NOT APPLICABLE			
Line 6 Process Gas	NOT APPLICABLE			
Line 6 Cal Gas	NOT APPLICABLE			
Line 6 MFC Size	NOT APPLICABLE			
Line 7 Process Gas	NOT APPLICABLE			
Line 7 Cal Gas	NOT APPLICABLE			
Line 7 MFC Size	NOT APPLICABLE			
Line 8 Process Gas	NOT APPLICABLE			
Line 8 Cal Gas	NOT APPLICABLE			
Line 8 MFC Size	NOT APPLICABLE			
Line 9 Process Gas	NOT APPLICABLE			
Line 9 Cal Gas	NOT APPLICABLE			
Line 9 MFC Size	NOT APPLICABLE			
Line 10 Process Gas	NOT APPLICABLE			
Line 10 Cal Gas	NOT APPLICABLE			
Line 10 MFC Size	NOT APPLICABLE			
Chamber Inject Type	NOT APPLICABLE			

Mainframe

<u>Loadlock</u>	<u>Selected Option</u>	<u>Part# or NSR#</u>	<u>Part or NSR Description</u>	<u>Note #</u>
Loadlock Type	WIDE BODY			
Wafer Mapping	BASIC			
Cassette Platform Type	UNIVERSAL			
Cassette Type	FLUOROWARE PA182-60MB-06XX			
Front Panel	PAINTED			
WIDE BODY OPTIONS				
Auto Rotation	YES			
WBL Equalization	YES			
Integrated Cassette Sensor	NO			
NARROWBODY OPTIONS				
Cassette Present Sensor	NOT AVAILABLE			
Wafer Out of Cassette Sensor	NOT AVAILABLE			

<u>Common Chamber Options</u>	<u>Selected Option</u>	<u>Part# or NSR#</u>	<u>Part or NSR Description</u>	<u>Note #</u>
Variable Speed Blower	YES			
Lamps Type	USHIO BNA6			
Recipe Control Software	SERIAL			
Lift Pin Type	HOLLOW SILICON CARBIDE			
Pump Isolation Valve	NOT APPLICABLE			
Gold Reflective Plating	STANDARD			

<u>Facilities</u>	<u>Selected Option</u>	<u>Part# or NSR#</u>	<u>Part or NSR Description</u>	<u>Note #</u>
Mainframe Cooling Water	OUT THE BACK			

<u>Transfer Chamber</u>	<u>Selected Option</u>	<u>Part# or NSR#</u>	<u>Part or NSR Description</u>	<u>Note #</u>
Wafer Sensing	ON THE FLY CENTERFINDING			
Robot	HP+ ENP			
Xfer Ch Purge Restrictor Size	15 SLM			
Clear Blank Off Plates	NO			

<u>Fab Interface</u>	<u>Selected Option</u>	<u>Part# or NSR#</u>	<u>Part or NSR Description</u>	<u>Note #</u>
Software Release	LATEST RELEASE			
Factory Automation	NONE			
SMIF Robot Type	NOT APPLICABLE			
SMIF Interface Type	NOT APPLICABLE			
Robot Supplied By	NOT APPLICABLE			

<u>Status Light Tower</u>	<u>Selected Option</u>	<u>Part# or NSR#</u>	<u>Part or NSR Description</u>	<u>Note #</u>
Panel Mount	RYG			
Light Tower	RYG LED			

Remotes

<u>System Controller</u>	<u>Selected Option</u>	<u>Part# or NSR#</u>	<u>Part or NSR Description</u>	<u>Note #</u>
Computer Type	VITA CONTROLLER			
Standard GEM Interface	YES			
Controller Plexiglass Cover	NO			

<u>Vacuum Pumps</u>	<u>Selected Option</u>	<u>Part# or NSR#</u>	<u>Part or NSR Description</u>	<u>Note #</u>
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Pumps Provided by	CUSTOMER	
Loadlock Chamber Pump	EDWARDS IQDR40	40217758-00 pumps Ebera A70W
Transfer Chamber Pump	NONE	
Chamber A Pump	NONE	
Chamber B Pump	NONE	
Chamber C Pump	NONE	
Chamber D Pump	NONE	

<u>Heat Exchangers</u>	<u>Selected Option</u>	<u>Part# or NSR#</u>	<u>Part or NSR Description</u>	<u>Note #</u>
SICONI HX OPTIONS LID AND CHAMBER HEAT EXCHANGER H2000 DI EG	NOT APPLICABLE			
PEDESTAL HEAT EXCHANGER H2000 DI	NOT APPLICABLE			
Heat Exchanger Interface	NOT APPLICABLE			

<u>System Monitors</u>	<u>Selected Option</u>	<u>Part# or NSR#</u>	<u>Part or NSR Description</u>	<u>Note #</u>
Monitor Type	FLAT PANEL DISPLAY			
Monitor 1	THRU THE WALL			
Monitor 1 Cables	50 FOOT			
Monitor 2	STAND ALONE			
Monitor 2 Cables	50 FOOT			
Monitor 3	NONE			
Monitor 3 Cables	NONE			

<u>Cable Lengths (Effective)</u>	<u>Selected Option</u>	<u>Part# or NSR#</u>	<u>Part or NSR Description</u>	<u>Note #</u>
EFFECTIVE LENGTH IS DISTANCE BETWEEN EQUIPMENT				
Controller to Mainframe	55 FT TOTAL (39 FT EFFECTIVE)			
Wafer Susceptor Lift Cable	65 FT TOTAL (65 FT EFFECTIVE)			
Controller to Pump	83 FT TOTAL (80 FT EFFECTIVE)			
Heat Exchanger Cable Length	NOT APPLICABLE			
Heat Exchanger Hose Length	NOT APPLICABLE			

Service Options

<u>Service Options</u>	<u>Selected Option</u>	<u>Part# or NSR#</u>	<u>Part or NSR Description</u>	<u>Note #</u>
Startup Specification	STANDARD			
Custom Per Each Addl Spec	0			
Customer Source Inspection	NO SOURCE INSPECTION			
CCIC Inspection	NO			
EPI CENTURA TECHNICAL TRAINING				
Standard Training Package	NO			
Additional \$1K Training	0			
Additional \$5K Training	0			
Additional \$10K Training	0			
WARRANTY OPTIONS				
Warranty	12 MONTHS WARRANTY			
Warranty PM Included	NO			
Tier Level	2			

Additional Options

<u>Tools and Kits</u>	<u>Selected Option</u>	<u>Part# or NSR#</u>	<u>Part or NSR Description</u>	<u>Note #</u>
Maintenance Purge Box	YES			
First in Fab	NO			
Fab Tool Kit	NO			
Calibration Tool Kit	NO			
Centura HT Standard Tool Kit	NO			
Centura HT Temp Profiling Kit	NO			
Upper Dome Centering Ring Kit	NO			
Robot Calibration Tool	NO			

Spares

<u>Conversion Options</u>	<u>Selected Option</u>	<u>Part# or NSR#</u>	<u>Part or NSR Description</u>	<u>Note #</u>
WAFFER SIZE CONV KITS (PER CHAMBER)				
Wafer Size Conversion 125mm	NO			
Wafer Size Conversion 150mm	NO			
Wafer Size Conversion 200mm	NO			
WAFFER HANDLER CONV KITS (PER SYSTEM)				
Wafer Handler Conversion 125mm	NO			
Wafer Handler Conversion 150mm	NO			
Wafer Handler Conversion 200mm	NO			

<u>Manually Input Spare 1 - 20</u>	<u>Selected Option</u>	<u>Part# or NSR#</u>	<u>Part or NSR Description</u>	<u>Note #</u>
Spare format: 1234-56789 Must be in Item Master & Price Master or export/import to Oracle will fail.				
<hr/>				
Spare 16 Part Number				
Spare 16 Description				
Spare 16 Quantity				
<hr/>				
Spare 17 Part Number				
Spare 17 Description				
Spare 17 Quantity				
<hr/>				
Spare 18 Part Number				
Spare 18 Description				
Spare 18 Quantity				
<hr/>				
Spare 19 Part Number				
Spare 19 Description				
Spare 19 Quantity				
<hr/>				
Spare 20 Part Number				
Spare 20 Description				
Spare 20 Quantity				
Spare 21 to 40				
NO				

NSR Summary

New NSRs

Status	CES#	NSR#	Description	Qty	Loc./Folder	Worksheet	Item
DRAFT-PST	-----	40217758-0	pumps Ebara A70W	1	Remotes	Vacuum Pumps	Loadlock Chamber Pump
DRAFT-PST	-----	40217759-0	Gas Panel NSR	1			

				Gas Delivery Options Gasline Information	Epi Gas Delivery Options Pallet (A) - Pronto Atmospheric	ATM Capability in GP Only Line 1 MFC Size
DRAFT-PST	-----	40218487-0	Chamber slit purge 40SLM	1		
DRAFT-PST	-----	40221130-0	Gss Panel NSR	1		Mixed Dopant 2
DRAFT-PST	-----	40221133-0	Rotation purge 6SLM	1	(A) - (PA) PRONTO ATMOSPHERIC Chamber	Exhaust Deposit Reduction
DRAFT-PST	-----	40223093-0	CIP Shaft	1	(A) - (PA) PRONTO ATMOSPHERIC Chamber	Susceptor Support Shaft

Note: The NSR Status column displays the status of the NSR at the time the SSR is generated. Please view the NSR Summary within PST for the current status as determined by the NSR Workflow process.

Associated NSRs

CES#	NSR#	Description	Qty	Loc./Folder	Worksheet	Item
-----	40218487-0	Chamber slit purge 40SLM	1	Gasline Information	Pallet (A) - Pronto Atmospheric	Line 1 MFC Size
		Chamber slit purge 40SLM		Gasline Information	Pallet (B) - Pronto Atmospheric	Line 1 MFC Size
		Chamber slit purge 40SLM		Gasline Information	Pallet (C) - Pronto Atmospheric	Line 1 MFC Size
-----	40221133-0	Rotation purge 6SLM	1	(A) - (PA) PRONTO ATMOSPHERIC Chamber	Pronto Atmospheric Chamber	Exhaust Deposit Reduction
		Rotation purge		(B) - (PA) PRONTO ATMOSPHERIC Chamber	Pronto Atmospheric Chamber	Exhaust Deposit Reduction
		Rotation Purge		(C) - (PA) PRONTO ATMOSPHERIC Chamber	Pronto Atmospheric Chamber	Exhaust Deposit Reduction
-----	40223093-0	CIP Shaft	1	(A) - (PA) PRONTO ATMOSPHERIC Chamber	Pronto Atmospheric Chamber	Susceptor Support Shaft
		CIP shaft		(B) - (PA) PRONTO ATMOSPHERIC Chamber	Pronto Atmospheric Chamber	Susceptor Support Shaft
		CIP shaft		(C) - (PA) PRONTO ATMOSPHERIC Chamber	Pronto Atmospheric Chamber	Susceptor Support Shaft

Note Summary

Note #	Note
Note# 1	0200-24866 preheat ring
Note# 2	0200-24866 preheat ring
Note# 3	0200-24866 preheat ring

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Attachments

The specification does not contain any attachments.