

JM3 Training Course

Product Feature and Analysis Tips

2/20/2003

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Product Name

QCI Project Name	JM3	JM3B
WIN Product Line	D500	500M
R/D Code Name	Daytona	Benz_lite

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SKU (Stock Keeping Unit)

Dell P/N	Quanta P/N	Description
	1JM3ZZZWI01	Daytona (JM3)
	31JM3MB0005 32JM1IB0006 33JM3LB0002	M/B IO/B SW/B

Key Chips - I

Category	Official Name	Code Name
CPU	Centrino	Centrino
N Bridge	RG82855GM	GMCH-M, Montara-GML/GM/GM+
S Bridge	FW82801DBM	ICH4-M

Key Chips - II

Category	Official Name	Code Name
Super I/O	SMsC LPC47N254	Macallan
BIOS	ST MICRO M29W008AB1/SST39VF080	FWH (Firmware Hub)
Cardbus Controller	OZ- OZ6912(TQFP)	
Audio Controller	SIGMATEL- STAC9750	

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Key Chips - III

Category	Official Name	Code Name	
Clock Gen.	CK-TITAN-B	CK-408	
Batt Charger	MAX1645AEEI(QSOP)		

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Key Features - CPU

- ✦ CPU – Centrino™
 - ✦ 0.13-um process
 - ✦ Socket 478-pin
 - ✦ 32KB/32KB L1 Cache
 - ✦ 1MB L2 Cache
 - ✦ CPU Bus = Clock 100MHz,
AGTL+, 4x Data, 2x Address
 - ✦ CPU Core Voltage = 1.356-V (Perf mode)
0.844-V (Batt Mode)
1.2-V (IO Buffer support)

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Key Features – North Bridge

- ✦ GMCH/+
 - ✦ Only Support Centrino.
 - ✦ Only Support DDR-SDRAM (PC266/333)
 - ✦ Support AGP 4X
 - ✦ GMCH/+ Core = 1.2V, CPU Bus = VHCORE
 - ✦ DVO/DAC = 1.5-V, DDR-SDRAM I/F = 2.5-V
 - ✦ Hub-Link to connect S-Bridge

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Key Features – South Bridge

- ✦ (ICH4-M, Rev: B2)
 - ✦ IDE ATA-100/66/33
 - ✦ USB 1.1/2.0
 - ✦ LPC/FWH bus
 - ✦ AC97 interface
 - ✦ Power Mgmt/RTC/SMBus/GPIO
 - ✦ Core = 1.8V, VccRTC = 3.3V
 - ✦ GPIO/PCI/AC97/LPC/USB/PM/IDE = 3.3V
 - ✦ Hub-Link to connect to N-Bridge

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Key Features – LCD

Name	Resolution	LCD Base Freq	VGA Base Freq
UXGA	1600x1200	82Mhz	162Mhz
SXGA+	1400x1050	54Mhz	108Mhz
XGA	1024x768	65Mhz	65Mhz

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Key Features – Super I/O+FWH

- ✦ Super I/O (Macallen)
 - ✦ +RTC_VCC, +3VALW, +3VRUN
 - ✦ Power-On/Off Management
- ✦ FWH (SST or STMicro)
 - ✦ 1M Byte
 - ✦ LPC, 33MHz

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Key Features – Ethernet

- ✦ 82562EM PHY
 - ✦ Support 10Base-T and 100Base-T
 - ✦ Amber: 100Mbit Link
 - ✦ Green: 10Mbit Link or 802.11b 11Mbit Link
 - ✦ Yellow: Activity

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Key Features – Miscellaneous

- ✦ TI OZ6912 Cardbus Controller
 - ✦ TQFP package
 - ✦ Vcore = +3VSUS
- ✦ SIGMATEL STAC 9750-CC1 (AC97 Codec)
 - ✦ Support Dell D-Port(APR) SPDIF Interface
 - ✦ Connect STAC 9750-CC1 for headphone output
 - ✦ Connect Fairchild FAN7031 for internal speaker output

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JM3 v.s. JM2 (I)

	JM3	JM2
CPU	Centrino 0.13um(Currently) 1.6-GHz(Currently) L2=1MB	Centrino 0.13um(Currently) 1.6-GHz(Currently) L2=1MB
Chipset	Montara-GM/plus +ICH4-M	Odem+ ICH4-M
DRAM	PC266/333	PC266
LCD	SXGA+,XGA	UXGA,SXGA+,XGA

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JM3 v.s. JM2 (II)

	JM3	JM2
VGA	GMCH internal	ATI M9-A12
Super I/O, BIOS	LPC47N254 + FWH 1MB(In FWH)	LPC47N254 + FWH 1MB(In FWH)
DC/DC	MAX1999 (+12V embedded)	MAX1632 (+12V embedded)

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JM3 v.s. JM2 (III)

	JM3	JM2
Power ON/OFF	Yes	Yes
Extra Power (except 1.5/1.8/3/5/CPU)	1.25V,1.2V, 2.5V	1.25V,1.2V, 2.5V
Boards	M/B, IO/B, SW/B	M/B, IO/B, SW/B

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JM3 v.s. JM2 (IV)

	JM3	JM2
Smart Card	None (One slot of Cardbus)	Yes (Two slots of Cardbus)
MiniPCI	Yes (Wireless)	Yes (Wireless)
MDC (Modem Daughter Card)	Yes	Yes
NIC	Yes	Yes
R-Battery	15-mAH/18-mAH Internal Battery Area	15-mAH/18-mAH Internal Battery Area

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Power Hierarchy

Level 4: RUN	+3VRUN, +1.25VRUN, +5VRUN, +1.8VRUN
Level 3: SUS	+3VSUS, +5VSUS, +2.5VSUS, +3V_SRC
Level 2: ALW	+3VALW, +5VALW
Level 1: RTC_PWR	RTC_PWR3_3V, +RTC_PWR5V
Level 0: POWER SOURCE	PWR_SRC, +RTCSRC

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Troubleshooting - I

- ✦ Can not power on
 - ✦ No consumption of the 0.01A? (ALW, Macallen)
 - ✦ No jumping to 0.5A? (RUN, ICH)
 - ✦ Stop in the POST and then off? (CPU, DDR)
 - ✦ On/Off Loop all the time? (ICH, HUB, BIOS/Flash/K51)
 - ✦ ...

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Troubleshooting - II

- ✦ Check out the CPU voltage w/ your multi-meter
 - ✦ Avoiding inserting the CPU and DRAM.
 - ✦ Jumps to 0.6-V and then shuts down
 - ✦ Top-side of the System.
 - ✦ Specify Digital/HW or Power problem.
 - ✦ Using Software Debug tools to verify.

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FAQ - I

- ✎ Why BIOS is fixed instead of flex?
 - ✎ Ans: Cost and solder reliability
- ✎ Difference between MDC and MiniPCI?
 - ✎ Ans: Form-factor, AC97 vs PCI, ...

FAQ - II

- ✎ What is the difference between 70-W and 90-W
 - ✎ Adapter:
 - 70W = 20-V * 3.5A, LOW_PWR = floating
 - 90W = 20-V * 4.5A, LOW_PWR = high
 - ✎ System:
 - 70W => current protection = 3.2-A
 - 90W => current protection = 4.2-A
 - Maximum battery charging current remains 3.5A