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Find the *EKF DE2-5-TIGER* at our website: *Click HERE*

Product Information

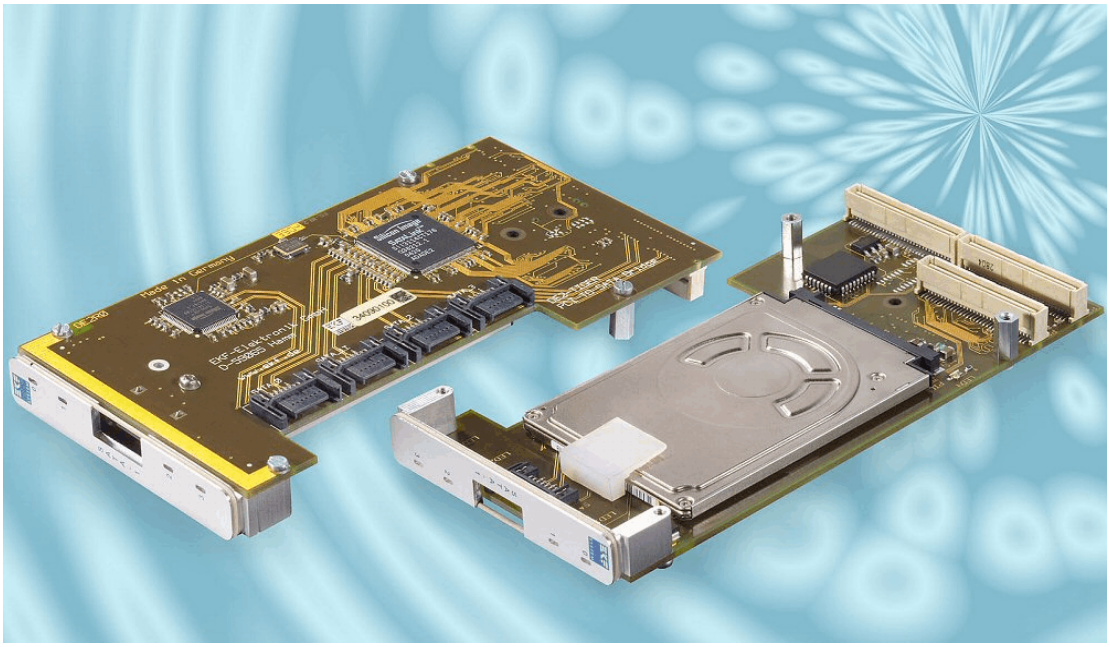
DE2-TIGER • PMC Module
Quad Serial ATA Controller & 1.8-Inch Hard Disk Drive

Document No. 3449 • Edition 2006-07

*The **DE2-TIGER** from **EKF** is a quad port Serial ATA hostadapter, compliant with SATA 1.0 specification.* The PMC mezzanine module can be optionally equipped with an 1.8-inch on-board hard disk drive. Hence the DE2-TIGER is a reliable mass-storage solution for rugged environments, suitable for any CompactPCI or VMEbus PMC carrier boards.

The DE2-TIGER provides an extended BIOS, which enables the module to operate either as boot device, or as additional SATA host controller in a system.

In addition, the optional on-board SATA to Parallel ATA bridge allows for attachment of a legacy IDE (Parallel ATA) hard disk drive.

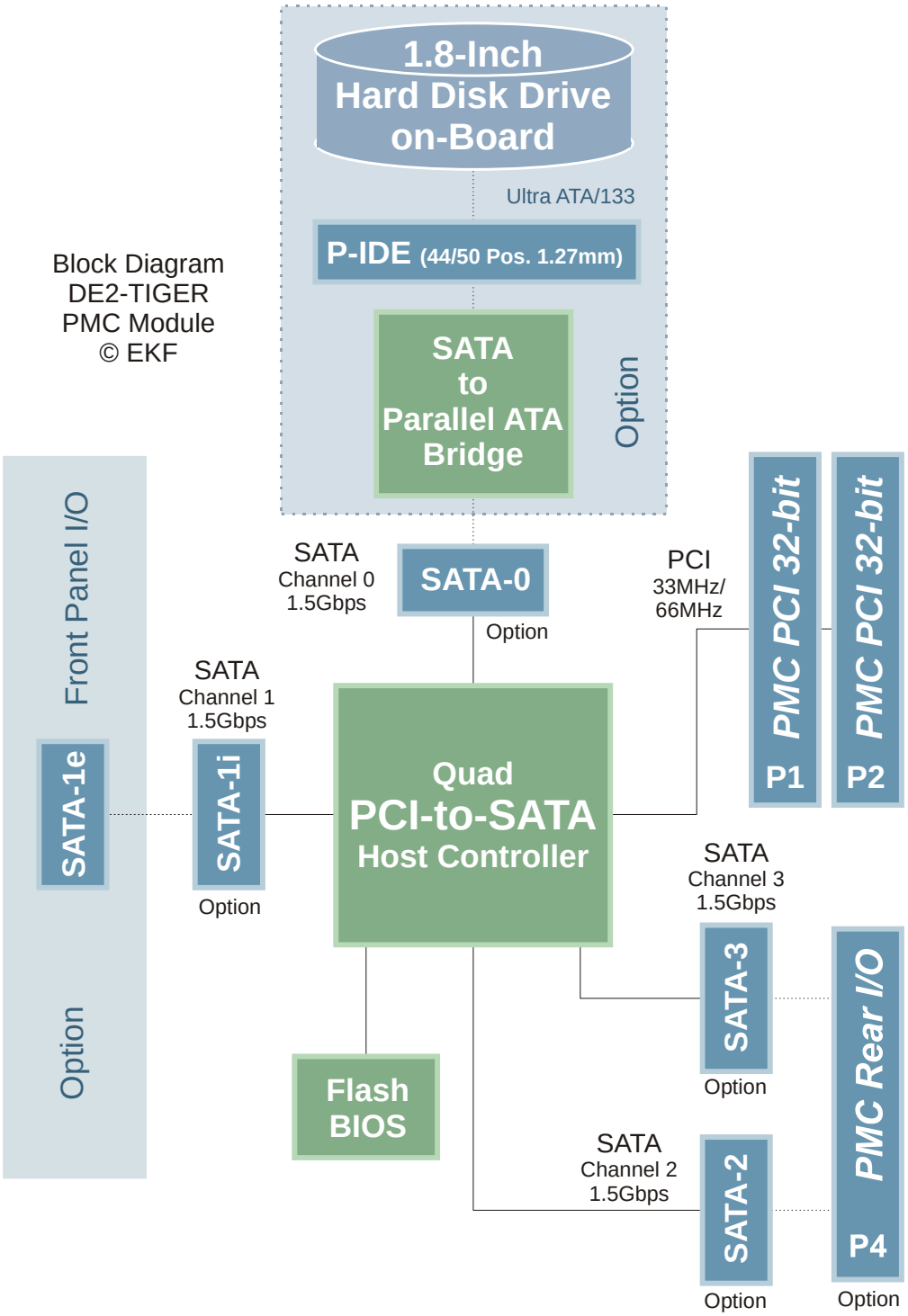


DE2-TIGER

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Block Diagram DE2-TIGER



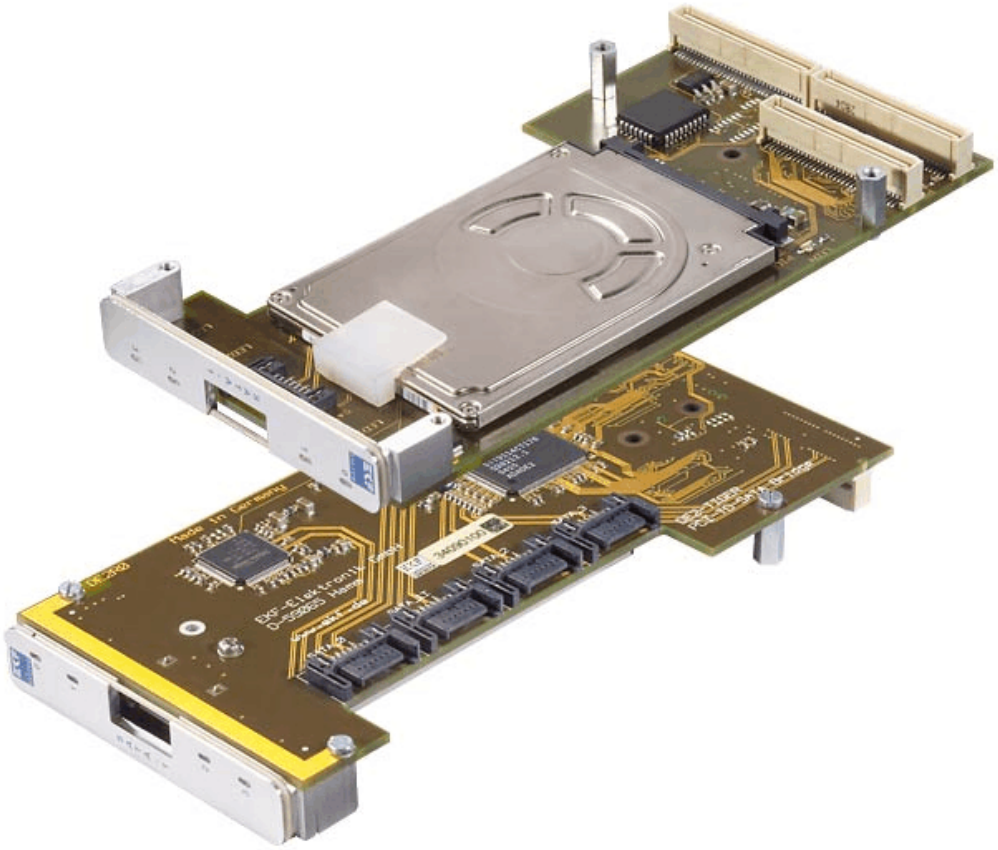
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The DE2-TIGER provides four separate SATA channels to access storage media such as hard disk drive. On-board SATA connectors are provided optionally for system internal usage. As an alternative, SATA line 0 is dedicated to an optional on-board 1.8-inch hard disk drive by means of the on-board Serial ATA to Parallel ATA bridge. SATA line 1 is alternatively accessible for an external device attached to the front bezel connector.

Also available as an option, the SATA lines 2 & 3 are alternatively wired for rear I/O usage across P4.

Available for download are drivers (RAID and non-RAID) for popular operating systems, e.g. Windows® 2000, Windows® XP, Linux and Novell Netware®. A software RAID configuration utility and a BIOS Flash tool complement the software suite.



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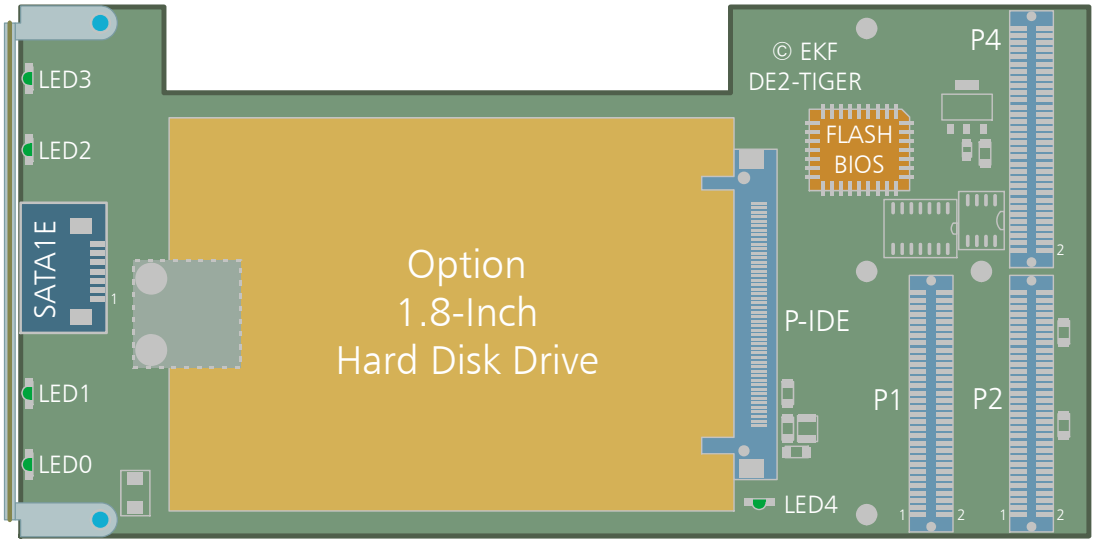
Feature Summary DE2-TIGER	
Form Factor	*PMC Mezzanine Card* 149.0 x 74.0mm Single Size CMC Envelope IEEE P1386.1
Controller	PCI to 4-port Serial ATA (SATA) host controller (Silicon Image), SATALink 1.5Gbps
SATA Port Assignment (Connector Options)	▸ Channel 0 available either via on-board connector option SATA-0, or dedicated to the on-board SATA to Parallel ATA bridge (option for 1.8-inch IDE on-board hard disk drive) ▸ Channel 1 available either via on-board connector option SATA-1i (i=internal usage), or accessible via SATA-1e (e=external) front bezel SATA connector (option) ▸ Channels 2 & 3 available either via on-board connectors SATA-2 & SATA-3 (option), or channels 2 & 3 optionally routed to P1386 PMC connector P4 for rear I/O usage
PCI Interface	32-bit, 33/66MHz, P1386 PMC connectors P1/P2
BIOS	On-board Flash, non-RAID or RAID versions, programming tool available for BIOS update
Drivers/Software	Windows® 2000, Windows® XP, Linux and Novell Netware®, Software RAID (Level 0 = striping , 1 = mirroring, 10 = mirrored stripe), RAID controller function requires changing of standard BIOS to RAID BIOS (BIOS Flash tool available by download)
Typical Power Consumption	+3.3V ±5% 0.45A max. (0.9A max. including on-board hard disk)
Thermal Conditions	• Operating temperature: 0°C to +70°C • Storage temperature: -40°C to +85°C
Environmental Conditions	• Humidity 5% ... 95% non condensing • Altitude -300m ... +3000m • Shock 15g 0.33ms, 6g 6ms • Vibration 1g 5-2000Hz
MTBF	0.4 * 10^6h
Option on-Board Hard Disk Drive	20GB .. 80GB, e.g. Toshiba 1.8-inch embedded drive MK3006GAL 30GB, Ultra ATA/100, 4200RPM, average seek time 15ms, low power 3.3V 1.1W seek, 0.4W active idle, high reliability MTTF 300.000h, vibration (operating) 2g 15-500Hz, shock (operating) 500g 2ms half sine wave

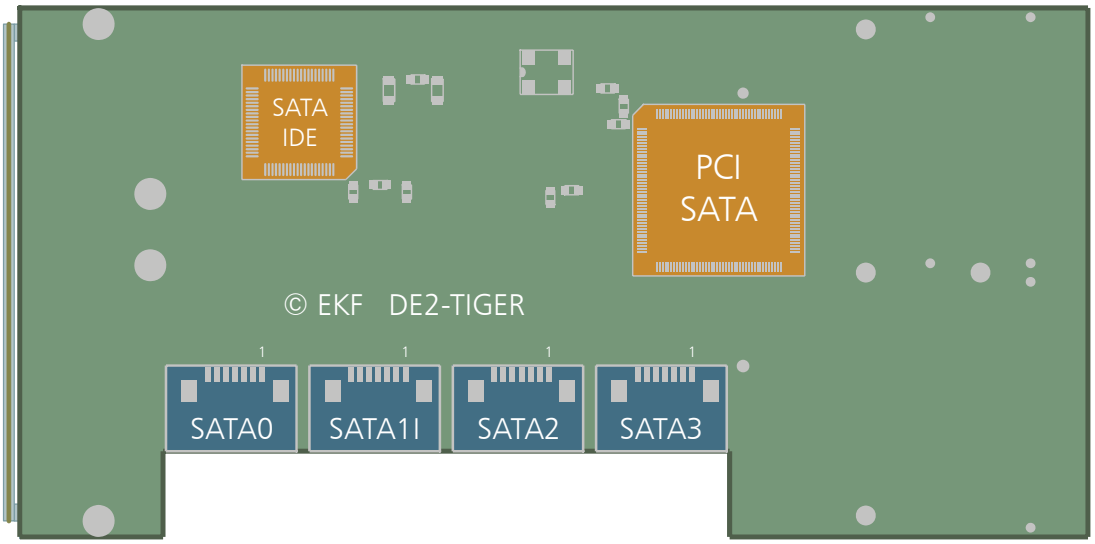
subject to technical changes

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Top View Assembly Drawing DE2-TIGER

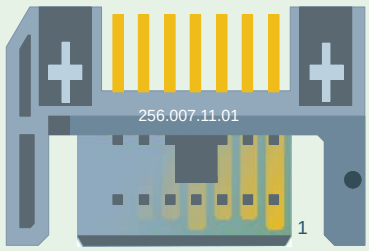




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SATA Connectors SATA-0 - SATA-3

SATA-0 - SATA-3		
	1	GND
	2	SATA_TX(0-3)+
	3	SATA_TX(0-3)-
	4	GND
	5	SATA_RX(0-3)-
	6	SATA_RX(0-3)+
	7	GND

All on-board SATA connectors are provided as an option:

- Choose exclusively either SATA-0, or the on-board hard disk option
- Choose exclusively either SATA-1i (internal), or SATA-1e (external usage - front bezel)
- Choose exclusively either SATA-2, or rear I/O across P4
- Choose exclusively either SATA-3, or rear I/O across P4

Please note that the optional on-board SATA receptacles with exception of SATA-1e are mounted on the bottom side of the PCB (this is the side remaining visible when a PMC module has been installed on the carrier board). In some cases, such SATA receptacles (or even more likely cable connectors attached to them) may come in conflict with other components either on the carrier board itself (e.g. high profile heat sink, or a neighboured PMC module) or components stuffed on the bottom side of another board on the next backplane slot in a system. Be sure to explore your individual situation before ordering a custom specific version of the DE2-TIGER which provides on-board SATA connectors.

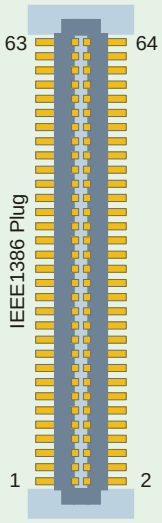
Board Version	SATA Channel (Function/Connector)			
	Line 0	Line 1	Line 2	Line 3
DE2-1-TIGER	SATA-0	SATA-1e	P4	P4
DE2-2-TIGER	SATA/IDE bridge	SATA-1e	P4	P4
DE2-XX-TIGER Custom Specific Options [1]	SATA/IDE bridge	SATA-1e	P4	P4
	SATA-0	SATA-1i	SATA-2	SATA-3

[1] Choose an option for each individual SATA line. It is also valid to specify no function (not connected) for a particular SATA channel. Please request for a quote for your custom specific version (please include quantity).

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PMC Mezzanine Connector P1



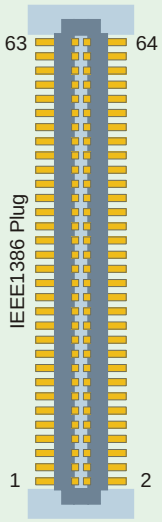
P1 PMC PCI			
GND	63	64	*req64#*
ad0	61	62	*+5V*
ad2	59	60	ad1
Vio	57	58	ad3
ad4	55	56	GND
ad6	53	54	ad5
GND	51	52	c/be0#
ad9	49	50	*+5V*
ad12	47	48	ad11
Vio	45	46	ad15
par	43	44	GND
rsvd	41	42	*rsvd*
GND	39	40	*lock#*
devsel#	37	38	*+5V*
GND	35	36	irdy#
frame#	33	34	GND
Vio	31	32	ad17
ad19	29	30	*+5V*
ad22	27	28	ad21
GND	25	26	c/be3#
ad25	23	24	GND
ad28	21	22	ad27
Vio	19	20	ad31
req#	17	18	*+5V*
GND	15	16	gnt#
clk	13	14	GND
GND	11	12	*3.3Vaux*
intd#	09	10	*rsvd*
busmode1#	07	08	*+5V*
intb#	05	06	*intc#*
GND	03	04	inta#
tck	01	02	*-12V*

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PMC Mezzanine Connector P2



P2 PMC PCI			
GND	63	64	*rsvd*
ack64#	61	62	+3.3V
GND	59	60	*rsvd*
rsvd	57	58	*rsvd*
rsvd	55	56	GND
+3.3V	53	54	*rsvd*
ad7	51	52	*rsvd*
ad8	49	50	+3.3V
m66en	47	48	ad10
ad14	45	46	ad13
c/be1#	43	44	GND
+3.3V	41	42	serr#
perr#	39	40	GND
GND	37	38	stop#
trdy#	35	36	+3.3V
GND	33	34	*rsvd*
ad16	31	32	c/be2#
ad18	29	30	GND
+3.3V	27	28	ad20
idsel	25	26	ad23
ad24	23	24	+3.3V
GND	21	22	ad26
ad30	19	20	ad29
pme#	17	18	GND
3.3V	15	16	busmode4#
rst#	13	14	busmode3#
busmode2#	11	12	+3.3V
rsvd	09	10	*rsvd*
GND	07	08	*rsvd*
tdi	05	06	GND
tms	03	04	tdo
+12V	01	02	trst#

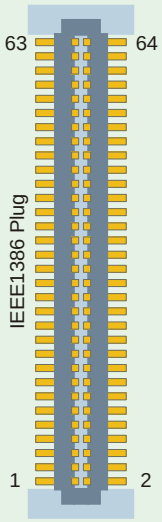
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PMC Mezzanine Connector P4

P4 PMC Rear I/O				
		63	64	
		61	62	
	GND	59	60	GND
	SATA_RX2+	57	58	GND
	SATA_RX2-	55	56	GND
	GND	53	54	GND
	SATA_TX2-	51	52	GND
	SATA_TX2+	49	50	GND
	GND	47	48	GND
	LED2	45	46	GND
	+3.3V	43	44	GND
		41	42	
	GND	39	40	GND
	SATA_RX3+	37	38	GND
	SATA_RX3-	35	36	GND
	GND	33	34	GND
	SATA_TX3-	31	32	GND
	SATA_TX3+	29	30	GND
	GND	27	28	GND
	LED3	25	26	GND
	+3.3V	23	24	GND
		21	22	
		19	20	
		17	18	
		15	16	
		13	14	
		11	12	
		09	10	
		07	08	
		05	06	
		03	04	
		01	02	

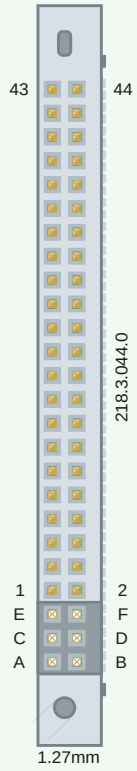


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IDE Connector P-IDE

P-IDE Primary IDE 1.27mm Dual-Row Connector (On-Board Hard-Disk-Drive 1.8-inch)			
	A [2]	B [2]	
	C [2]	D [2]	
	E [2]	F [2]	
reset#	1	2	GND
d07	3	4	d08
d06	5	6	d09
d05	7	8	d10
d04	9	10	d11
d03	11	12	d12
d02	13	14	d13
d01	15	16	d14
d00	17	18	d15
GND	19	20	
dmarq	21	22	GND
iow#	23	24	GND
ior#	25	26	GND
iordy	27	28	GND
dmack#	29	30	GND
intrq	31	32	
a1	33	34	cblid
a0	35	36	a2
cs0#	37	38	cs1#
asp#	39	40	GND
+3.3V [1]	41	42	+3.3V [1]
GND	43	44	



[1] PolySwitch 0.75A [2] Drive Configuration

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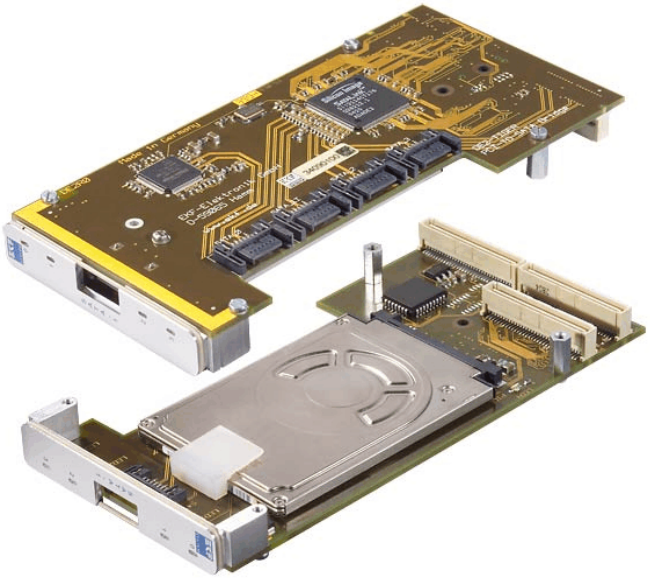
Ordering Information		
Alias	Ordering No.	Short Description
TIGER	DE2-1-TIGER	PMC Serial ATA controller, w/o on-board hard disk drive, stuffed SATA connectors SATA-0 (on-board/internal usage), SATA-1E (front bezel/external usage)
TIGER	DE2-2-TIGER	PMC Serial ATA controller, with on-board hard disk drive 1.8-inch, stuffed connector SATA-1E (front bezel), not stuffed connector SATA-0 (replaced by SATA/IDE bridge)



DE2-TIGER on a PMC Carrier Board

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