

Beetle 1.2 pads

Positions are the lower left corner of the pad window with respect to the lower left corner of the chip ring. The top right corner of the chip ring is 5100µm,6100µm.

Front pads (pad window of all pads is 120µm x 95µm)

Ref.	Pin name	x[um]	y[um]	Type	Description
1	VddPre	490.00	5836.30	power input	positive preamplifier supply
2	TestInput	25.00	5796.06	input	input of testchannel
3	VddPre	180.00	5755.82	power input	positive preamplifier supply
4	VddPre	335.00	5715.58	power input	positive preamplifier supply
5	VddPre	490.00	5675.34	power input	positive preamplifier supply
6	AnalogIn<0>	25.00	5635.10	input	input of channel 0
7	AnalogIn<1>	180.00	5594.86	input	input of channel 1
8	AnalogIn<2>	335.00	5554.62	input	input of channel 2
9	AnalogIn<3>	490.00	5514.38	input	input of channel 3
10	AnalogIn<4>	25.00	5474.14	input	input of channel 4
11	AnalogIn<5>	180.00	5433.90	input	input of channel 5
12	AnalogIn<6>	335.00	5393.66	input	input of channel 6
13	AnalogIn<7>	490.00	5353.42	input	input of channel 7
14	AnalogIn<8>	25.00	5313.18	input	input of channel 8
15	AnalogIn<9>	180.00	5272.94	input	input of channel 9
16	AnalogIn<10>	335.00	5232.70	input	input of channel 10
17	AnalogIn<11>	490.00	5192.46	input	input of channel 11
18	AnalogIn<12>	25.00	5152.22	input	input of channel 12
19	AnalogIn<13>	180.00	5111.98	input	input of channel 13
20	AnalogIn<14>	335.00	5071.74	input	input of channel 14
21	AnalogIn<15>	490.00	5031.50	input	input of channel 15
22	AnalogIn<16>	25.00	4991.26	input	input of channel 16
23	AnalogIn<17>	180.00	4951.02	input	input of channel 17
24	AnalogIn<18>	335.00	4910.78	input	input of channel 18
25	AnalogIn<19>	490.00	4870.54	input	input of channel 19
26	AnalogIn<20>	25.00	4830.30	input	input of channel 20
27	AnalogIn<21>	180.00	4790.06	input	input of channel 21
28	AnalogIn<22>	335.00	4749.82	input	input of channel 22
29	AnalogIn<23>	490.00	4709.58	input	input of channel 23
30	AnalogIn<24>	25.00	4669.34	input	input of channel 24
31	AnalogIn<25>	180.00	4629.10	input	input of channel 25
32	AnalogIn<26>	335.00	4588.86	input	input of channel 26
33	AnalogIn<27>	490.00	4548.62	input	input of channel 27
34	AnalogIn<28>	25.00	4508.38	input	input of channel 28
35	AnalogIn<29>	180.00	4468.14	input	input of channel 29
36	AnalogIn<30>	335.00	4427.90	input	input of channel 30
37	AnalogIn<31>	490.00	4387.66	input	input of channel 31
38	AnalogIn<32>	25.00	4347.42	input	input of channel 32
39	AnalogIn<33>	180.00	4307.18	input	input of channel 33
40	AnalogIn<34>	335.00	4266.94	input	input of channel 34
41	AnalogIn<35>	490.00	4226.70	input	input of channel 35
42	AnalogIn<36>	25.00	4186.46	input	input of channel 36
43	AnalogIn<37>	180.00	4146.22	input	input of channel 37
44	AnalogIn<38>	335.00	4105.98	input	input of channel 38
45	AnalogIn<39>	490.00	4065.74	input	input of channel 39
46	AnalogIn<40>	25.00	4025.50	input	input of channel 40
47	AnalogIn<41>	180.00	3985.26	input	input of channel 41

Front pads (continue)

Ref.	Pin name	x[um]	y[um]	Type	Description
48	AnalogIn<42>	335.00	3945.02	input	input of channel 42
49	AnalogIn<43>	490.00	3904.78	input	input of channel 43
50	AnalogIn<44>	25.00	3864.54	input	input of channel 44
51	AnalogIn<45>	180.00	3824.30	input	input of channel 45
52	AnalogIn<46>	335.00	3784.06	input	input of channel 46
53	AnalogIn<47>	490.00	3743.82	input	input of channel 47
54	AnalogIn<48>	25.00	3703.58	input	input of channel 48
55	AnalogIn<49>	180.00	3663.34	input	input of channel 49
56	AnalogIn<50>	335.00	3623.10	input	input of channel 50
57	AnalogIn<51>	490.00	3582.86	input	input of channel 51
58	AnalogIn<52>	25.00	3542.62	input	input of channel 52
59	AnalogIn<53>	180.00	3502.38	input	input of channel 53
60	AnalogIn<54>	335.00	3462.14	input	input of channel 54
61	AnalogIn<55>	490.00	3421.90	input	input of channel 55
62	AnalogIn<56>	25.00	3381.66	input	input of channel 56
63	AnalogIn<57>	180.00	3341.42	input	input of channel 57
64	AnalogIn<58>	335.00	3301.18	input	input of channel 58
65	AnalogIn<59>	490.00	3260.94	input	input of channel 59
66	AnalogIn<60>	25.00	3220.70	input	input of channel 60
67	AnalogIn<61>	180.00	3180.46	input	input of channel 61
68	AnalogIn<62>	335.00	3140.22	input	input of channel 62
69	AnalogIn<63>	490.00	3099.98	input	input of channel 63
70	AnalogIn<64>	25.00	3059.74	input	input of channel 64
71	AnalogIn<65>	180.00	3019.50	input	input of channel 65
72	AnalogIn<66>	335.00	2979.26	input	input of channel 66
73	AnalogIn<67>	490.00	2939.02	input	input of channel 67
74	AnalogIn<68>	25.00	2898.78	input	input of channel 68
75	AnalogIn<69>	180.00	2858.54	input	input of channel 69
76	AnalogIn<70>	335.00	2818.30	input	input of channel 70
77	AnalogIn<71>	490.00	2778.06	input	input of channel 71
78	AnalogIn<72>	25.00	2737.82	input	input of channel 72
79	AnalogIn<73>	180.00	2697.58	input	input of channel 73
80	AnalogIn<74>	335.00	2657.34	input	input of channel 74
81	AnalogIn<75>	490.00	2617.10	input	input of channel 75
82	AnalogIn<76>	25.00	2576.86	input	input of channel 76
83	AnalogIn<77>	180.00	2536.62	input	input of channel 77
84	AnalogIn<78>	335.00	2496.38	input	input of channel 78
85	AnalogIn<79>	490.00	2456.14	input	input of channel 79
86	AnalogIn<80>	25.00	2415.90	input	input of channel 80
87	AnalogIn<81>	180.00	2375.66	input	input of channel 81
88	AnalogIn<82>	335.00	2335.42	input	input of channel 82
89	AnalogIn<83>	490.00	2295.18	input	input of channel 83
90	AnalogIn<84>	25.00	2254.94	input	input of channel 84
91	AnalogIn<85>	180.00	2214.70	input	input of channel 85
92	AnalogIn<86>	335.00	2174.46	input	input of channel 86
93	AnalogIn<87>	490.00	2134.22	input	input of channel 87
94	AnalogIn<88>	25.00	2093.98	input	input of channel 88
95	AnalogIn<89>	180.00	2053.74	input	input of channel 89
96	AnalogIn<90>	335.00	2013.50	input	input of channel 90
97	AnalogIn<91>	490.00	1973.26	input	input of channel 91
98	AnalogIn<92>	25.00	1933.02	input	input of channel 92
99	AnalogIn<93>	180.00	1892.78	input	input of channel 93
100	AnalogIn<94>	335.00	1852.54	input	input of channel 94
101	AnalogIn<95>	490.00	1812.30	input	input of channel 95

Front pads (continue)

102	AnalogIn<96>	25.00	1772.06	input	input of channel 96
103	AnalogIn<97>	180.00	1731.82	input	input of channel 97
104	AnalogIn<98>	335.00	1691.58	input	input of channel 98
105	AnalogIn<99>	490.00	1651.34	input	input of channel 99
106	AnalogIn<100>	25.00	1611.10	input	input of channel 100
107	AnalogIn<101>	180.00	1570.86	input	input of channel 101
108	AnalogIn<102>	335.00	1530.62	input	input of channel 102
109	AnalogIn<103>	490.00	1490.38	input	input of channel 103
110	AnalogIn<104>	25.00	1450.14	input	input of channel 104
111	AnalogIn<105>	180.00	1409.90	input	input of channel 105
112	AnalogIn<106>	335.00	1369.66	input	input of channel 106
113	AnalogIn<107>	490.00	1329.42	input	input of channel 107
114	AnalogIn<108>	25.00	1289.18	input	input of channel 108
115	AnalogIn<109>	180.00	1248.94	input	input of channel 109
116	AnalogIn<110>	335.00	1208.70	input	input of channel 110
117	AnalogIn<111>	490.00	1168.46	input	input of channel 111
118	AnalogIn<112>	25.00	1128.22	input	input of channel 112
119	AnalogIn<113>	180.00	1087.98	input	input of channel 113
120	AnalogIn<114>	335.00	1047.74	input	input of channel 114
121	AnalogIn<115>	490.00	1007.50	input	input of channel 115
122	AnalogIn<116>	25.00	967.26	input	input of channel 116
123	AnalogIn<117>	180.00	927.02	input	input of channel 117
124	AnalogIn<118>	335.00	886.78	input	input of channel 118
125	AnalogIn<119>	490.00	846.54	input	input of channel 119
126	AnalogIn<120>	25.00	806.30	input	input of channel 120
127	AnalogIn<121>	180.00	766.06	input	input of channel 121
128	AnalogIn<122>	335.00	725.82	input	input of channel 122
129	AnalogIn<123>	490.00	685.58	input	input of channel 123
130	AnalogIn<124>	25.00	645.34	input	input of channel 124
131	AnalogIn<125>	180.00	605.10	input	input of channel 125
132	AnalogIn<126>	335.00	564.86	input	input of channel 126
133	AnalogIn<127>	490.00	524.62	input	input of channel 127
134	GndPre	25.00	484.38	power input	negative preamplifier supply (detector gnd)
135	GndPre	180.00	444.14	power input	negative preamplifier supply (detector gnd)
136	GndPre	335.00	403.90	power input	negative preamplifier supply (detector gnd)
137	GndPre	490.00	363.66	power input	negative preamplifier supply (detector gnd)

Bottom pads (pad window of all pads is 95µm x 95µm)

Ref.	Pin name	x[µm]	y[µm]	Type	Description
138	ProbeVrefFE	1754.12	37.50	output	analog probe pad for Current Source FE
139	GndPre	1869.12	37.50	power input	negative preamplifier supply (detector gnd)
140	VddPre	1984.12	37.50	power input	positive preamplifier supply
141	VddComp	2099.12	37.50	power input	positive comparator supply
142	GndComp	2214.12	37.50	power input	negative comparator supply
143	notCompClock	2329.12	37.50	LVDS input	comparator clock
144	CompClock	2444.12	37.50	LVDS input	comparator clock
145	CompOut<8>	2559.12	37.50	LVDS output	comparator output channel 8
146	notCompOut<8>	2674.12	37.50	LVDS output	comparator output channel 8
147	CompOut<9>	2789.12	37.50	LVDS output	comparator output channel 9
148	notCompOut<9>	2904.12	37.50	LVDS output	comparator output channel 9
149	CompOut<10>	3019.12	37.50	LVDS output	comparator output channel 10
150	notCompOut<10>	3134.12	37.50	LVDS output	comparator output channel 10
151	CompOut<11>	3249.12	37.50	LVDS output	comparator output channel 11

Bottom pads (continue)

Ref.	Pin name	x[um]	y[um]	Type	Description
152	notCompOut<11>	3364.12	37.50	LVDS output	comparator output channel 11
153	CompOut<12>	3479.12	37.50	LVDS output	comparator output channel 12
154	notCompOut<12>	3594.12	37.50	LVDS output	comparator output channel 12
155	CompOut<13>	3709.12	37.50	LVDS output	comparator output channel 13
156	notCompOut<13>	3824.12	37.50	LVDS output	comparator output channel 13
157	CompOut<14>	3939.12	37.50	LVDS output	comparator output channel 14
158	notCompOut<14>	4054.12	37.50	LVDS output	comparator output channel 14
159	CompOut<15>	4169.12	37.50	LVDS output	comparator output channel 15
160	notCompOut<15>	4284.12	37.50	LVDS output	comparator output channel 15
161	VddComp	4399.12	37.50	power input	positive comparator supply
162	GndComp	4514.12	37.50	power input	negative comparator supply
163	FifoFull	4629.12	37.50	CMOS output	indicates full derandomizing buffer
164	RoTokenIn	4744.12	37.50	CMOS input	readout start token in daisy-chain mode
165	RoReTokenOut	4859.12	37.50	CMOS output	return token in daisy-chain mode

Backside pads (pad window of all pads is 95µm x 95µm)

Ref.	Pin name	x[um]	y[um]	Type	Description
166	Vddd	4974.62	184.72	power input	positive digital supply
167	Vddd	4974.62	299.72	power input	positive digital supply
168	Gnnd	4974.62	414.72	power input	negative digital supply
169	Gnnd	4974.62	529.72	power input	negative digital supply
170	TrigMon	4974.62	644.72	CMOS output	indicates if trigger pointer passes column 0
171	WriteMon	4974.62	759.72	CMOS output	indicates if write pointer passes column 0
172	notTrigger	4974.62	874.72	LVDS input	trigger
173	Trigger	4974.62	989.72	LVDS input	trigger
174	notClock	4974.62	1104.72	LVDS input	system clock
175	Clock	4974.62	1219.72	LVDS input	system clock
176	notTestpulse	4974.62	1334.72	LVDS input	test pulse
177	Testpulse	4974.62	1449.72	LVDS input	test pulse
178	notReset	4974.62	1564.72	LVDS input	system reset
179	Reset	4974.62	1679.72	LVDS input	system reset
180	notDataValid	4974.62	1794.72	LVDS output	indicates presence of valid data
181	DataValid	4974.62	1909.72	LVDS output	indicates presence of valid data
182	I2CAddr<0>	4974.62	2024.72	CMOS in pulldown	Beetle chip id. bit 0
183	I2CAddr<1>	4974.62	2139.72	CMOS in pulldown	Beetle chip id. bit 1
184	I2CAddr<2>	4974.62	2254.72	CMOS in pulldown	Beetle chip id. bit 2
185	I2CAddr<3>	4974.62	2369.72	CMOS in pulldown	Beetle chip id. bit 3
186	I2CAddr<4>	4974.62	2484.72	CMOS in pulldown	Beetle chip id. bit 4
187	I2CAddr<5>	4974.62	2599.72	CMOS in pulldown	Beetle chip id. bit 5
188	I2CAddr<6>	4974.62	2714.72	CMOS in pulldown	Beetle chip id. bit 6
189	SCL	4974.62	2829.72	CMOS input	I ² C-bus clock port
190	SDA	4974.62	2944.72	CMOS in-/output	I ² C-bus data port
191	PowerupReset	4974.62	3059.72	block in-/output	block pad for powerup Reset
192	EnableEDC	4974.62	3174.72	CMOS in pullup	enable Error Detection Correction
193	notAnalogOut<3>	4974.62	3289.72	output	analog output channel 3
194	AnalogOut<3>	4974.62	3404.72	output	analog output channel 3
195	notAnalogOut<2>	4974.62	3519.72	output	analog output channel 2
196	AnalogOut<2>	4974.62	3634.72	output	analog output channel 2
197	notAnalogOut<1>	4974.62	3749.72	output	analog output channel 1
198	AnalogOut<1>	4974.62	3864.72	output	analog output channel 1
199	notAnalogOut<0>	4974.62	3979.72	output	analog output channel 0
200	AnalogOut<0>	4974.62	4094.72	output	analog output channel 0

Backside pads (continue)

Ref.	Pin name	x[um]	y[um]	Type	Description
201	Gndd	4974.62	4209.72	power input	negative digital supply
202	Gndd	4974.62	4324.72	power input	negative digital supply
203	Gnda	4974.62	4439.72	power input	negative analog supply
204	Gnda	4974.62	4554.72	power input	negative analog supply
205	Gnda	4974.62	4669.72	power input	negative analog supply
206	Vddd	4974.62	4784.72	power input	positive digital supply
207	Vddd	4974.62	4899.72	power input	positive digital supply
208	Vdda	4974.62	5014.72	power input	positive analog supply
209	Vdda	4974.62	5129.72	power input	positive analog supply
210	Vdda	4974.62	5244.72	power input	positive analog supply
211	Icurrbuf	4974.62	5359.72	block output	analog probe pad (to be blocked)
212	Isf	4974.62	5474.72	block output	analog probe pad (to be blocked)
213	Ipipe	4974.62	5589.72	block output	analog probe pad (to be blocked)
214	Vdclbuf	4974.62	5704.72	block output	analog probe pad (to be blocked)
215	Vdbuf	4974.62	5819.72	block output	analog probe pad (to be blocked)

Top pads (pad window of all pads is 95µm x 95µm)

Ref.	Pin name	x[um]	y[um]	Type	Description
216	RoReTokenIn	4859.12	5967.52	CMOS input	return token in daisy-chain mode
217	RoTokenOut	4744.12	5967.52	CMOS output	readout start token in daisy-chain mode
219	ProbeVrefBE	4514.12	5967.52	output	analog probe pad for current source BE
220	ProbeloutBE	4399.12	5967.52	output	analog probe pad for current source BE
221	PipeampTestOut	4284.12	5967.52	output	analog probe pad for pipeline-amplifier
223	GndComp	4054.12	5967.52	power input	negative comparator supply
224	VddComp	3939.12	5967.52	power input	positive comparator supply
225	notCompOut<7>	3824.12	5967.52	LVDS output	comparator output channel 7
226	CompOut<7>	3709.12	5967.52	LVDS output	comparator output channel 7
227	notCompOut<6>	3594.12	5967.52	LVDS output	comparator output channel 6
228	CompOut<6>	3479.12	5967.52	LVDS output	comparator output channel 6
229	notCompOut<5>	3364.12	5967.52	LVDS output	comparator output channel 5
230	CompOut<5>	3249.12	5967.52	LVDS output	comparator output channel 5
231	notCompOut<4>	3134.12	5967.52	LVDS output	comparator output channel 4
232	CompOut<4>	3019.12	5967.52	LVDS output	comparator output channel 4
233	notCompOut<3>	2904.12	5967.52	LVDS output	comparator output channel 3
234	CompOut<3>	2789.12	5967.52	LVDS output	comparator output channel 3
235	notCompOut<2>	2674.12	5967.52	LVDS output	comparator output channel 2
236	CompOut<2>	2559.12	5967.52	LVDS output	comparator output channel 2
237	notCompOut<1>	2444.12	5967.52	LVDS output	comparator output channel 1
238	CompOut<1>	2329.12	5967.52	LVDS output	comparator output channel 1
239	notCompOut<0>	2214.12	5967.52	LVDS output	comparator output channel 0
240	CompOut<0>	2099.12	5967.52	LVDS output	comparator output channel 0
241	GndComp	1984.12	5967.52	power input	negative comparator supply
242	VddComp	1869.12	5967.52	power input	positive comparator supply
243	VddPre	1754.12	5967.52	power input	positive preamplifier supply
244	GndPre	1639.12	5967.52	power input	negative preamplifier supply (detector gnd)
245	TestOutput	1524.12	5967.52	output	frontend output of testchannel
246	Bufbias	1409.12	5967.52	output	analog probe pad
247	Shabias1	1294.12	5967.52	output	analog probe pad
248	Shabias	1179.12	5967.52	output	analog probe pad
249	Prebias1	1064.12	5967.52	output	analog probe pad
250	Prebias	949.12	5967.52	output	analog probe pad