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Find the *Mercury Computer Systems S2T64B* at our website: *Click HERE*

6.1. Choice of Objective Function

In airborne and spaceborn missions, all SWAP constraints are important. For computation processing purposes, the power requirement is the most important parameter. The weight of a computer system is determined by the custom-built chassis. The size of the system depends on the processing density of the processing elements and on the geometry by which they are arranged. However, power consumption is by far the fundamental variable to be minimized.

6.2. Mercury's COTS -Based Daughter Cards

To quantify the hardware design, we consider as examples the following specifications for four Mercury Computer's SHARC daughter cards [31]. Each daughtercard has six SHARC processors with two independent compute nodes (CN) of three processors each. Each CN on the daughtercard has 8, 16, 32 or 64 MB of DRAM that is shared by both CN's processors.

	S2T8B-D	**S2T16B-D**	**S2T32B-D**	**S2T64B-D**
Configurations:				
Compute Nodes (CNs)	2	2	2	2
SHARCSs per CN	3	3	3	3
MB DRAM per SHARC	2.7	5.3	10.7	21.3
MB DRAM per CN	8	16	32	64
MB DRAM per card	16	32	64	128
Peak Performance:				
FFTs (MFLOPS)	720	720	720	720
Single operation functions (CPU limited)	240	240	240	240
Multiply accumulate functions (CPU limited)	480	480	480	480
Data Transfer Rates:				
DRAM (MB/s)	320	320	320	320
SHARC buses, shared (MB/s)	320	320	320	320
Per SHARC, average (MB/s)	53.3	53.3	53.3	53.3
Electrical/Mechanical Specifications:				
Power (watts)	14	14	14	14
Weight (pounds)	.4	.4	.4	.4
Dimensions	5" x 4.435"	5" x 4.435"	5" x 4.435"	5" x 4.435"

Table 9: Mercury's SHARC daughtercard specifications.

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