



FIGURE 8-4. Memory addressing

Only the following memory areas can be addressed directly (in other words, without indirect addressing):

- The first 256 words of the current data space, referred to as “G” (*global*) mode. These are frequently used for indirect pointers.
- The first 128 words of positive offset from the L register, called L+. These are the local variables of the current procedure invocation, which would be called *automatic* variables in C.
- The first 64 words of system data (“SG+” mode). System calls run in user data space, so the CPU needs some means for privileged procedures to access system data. They are not accessible, even read-only, to unprivileged procedures.
- The first 32 words below the current value of the L register. This includes the caller stack frame (3 words) and up to 29 words of parameters passed to the procedure.
- The first 32 words below the top of the stack (S- addressing). These are used for *subprocedures*, procedures defined inside another procedure, which are called without leaving a stack frame. This address mode thus handles both the local variables and the parameters for a subprocedure.