The following are a few examples of bitwise logical operations and basic arithmetic operations supported by ALUs:

- **Addition.** Adds A and B with carry-in or carry-out sum at Y.
- **Subtraction.** Subtracts B from A or vice versa with the difference at Y and carry-in or carry-out.
- **Increment.** Where A or B is increased by one and Y represents the new value.
- **Decrement.** Where A or B is decreased by one and Y represents the new value.
- **AND.** The bitwise logic AND of A and B is represented by Y.
- **OR.** The bitwise logic OR of A and B is represented by Y.
- **Exclusive-OR.** The bitwise logic XOR of A and B is represented by Y.

ALU shift functions cause A or B operands to shift, either right or left, with the new operand represented by Y. Complex ALUs utilize barrel shifters to shift A or B operands by any number of bits in a single operation.