In this paper we present a new scan-path structure for improving the security of systems including a scan path, which normally introduces a security critical information channel into a design. The structure, named differential scan path (DiSP), divides the internal state of the scan path into two sections. During shift-out operation, only subtraction of the two sections is provided. The discovery of the internal state from this subtraction requires guesswork that increases exponentially with scan path length. Subtraction does not preserve parity, a property sometimes used during attacks. Output subtraction cannot be reversed and hence it is not possible to restore the internal state of the chip from the output. The structure is simple, requires little area and no unlocking keys.