Coding Question

Objective

Implement two programs, `tile` and `elit`. Regularly commit your progress into a repo as you work on it, and invite charles@ninebyte.com to the repo when you are done.

- `tile` reads 32 bytes and outputs a tile.
- `elit` reads a tile and outputs 32 bytes.

Upon implementation the following commands will succeed:

```
$ cat 32.bin | tile | diff - 10x10.tile
$ cat 10x10.tile | elit | cmp - 32.bin
```

Information

Program `tile`:

- Read 32 bytes from stdin as the DATA. Take the SHA-256 of the DATA as the HASH. Take the most significant 4 bytes of the HASH as the CHECKSUM. Convert the DATA and CHECKSUM to hexadecimal (hex) representations. Arrange the DATA hex into an 8x8 tile. Place the 8x8 tile in the centre of a 10x10 tile. Split the CHECKSUM hex into 4 and arrange at {N,E,S,W} around the 8x8 tile. Fill the remainder of the tile with MIDDLE DOT (U+00B7). The 10x10 tile is the TILE. Write the TILE to stdout.

Program `elit`:

- Read 10 lines of 10 characters from stdout as the TILE. Extract the inner 8x8 tile as a hexadecimal (hex) representation of the DATA. Extract from {N,E,S,W} hex bytes and combine into the CHECKSUM of 4 bytes. Verify the CHECKSUM is the first 4 bytes of the SHA-256 of the DATA. Confirm the MIDDLE DOTS are present. Write the DATA to stdout as binary.

```
$ cat 32.bin | xxd -p -c 64
a2c765b8ff9b592737427ba7efa643cff4c52348dcab5340395a0feaf3b8a36a
$ cat 32.bin | shasum -a 256 | cut -c1-8
2a0cc2c5
$ cat 10x10.tile
····2a····
·a2c765b8·
·ff9b5927·
·37427ba7·
cefa643cf0
5f4c52348c
·dcab5340·
·395a0fea·
·f3b8a36a·
····c2····
```

Marks

The code should be of *quality* - *correct*, *elegant*, *robust* and *succinct*.

The code may follow any style you are willing to back as the author.