div $\mathbf{F} = 4 + x + 3x = 4 + 4x$, so
$\iiint_E \text{div}\mathbf{F}\, dV = \int_0^2\int_0^2\int_0^2 (4x+4)\, dx\, dy\, dz = 64$ (notice the triple integral is four times the volume of the cube plus four times $\overline{x}$).

To compute $\iint_S \mathbf{F} \cdot d\mathbf{S}$, on

S_1: $\mathbf{n} = \mathbf{i}$, $\mathbf{F} = 8\mathbf{i} + 2y\mathbf{j} + 6z\mathbf{k}$, and $\iint_{S_1} \mathbf{F} \cdot d\mathbf{S} = \iint_{S_1} 8\, dS = 32$;

S_2: $\mathbf{F} = 4x\mathbf{i} + 2x\mathbf{j} + 3xz\mathbf{k}$, $\mathbf{n} = \mathbf{j}$ and $\iint_{S_2} \mathbf{F} \cdot d\mathbf{S} = \iint_{S_2} 2x\, dS = 8$;

S_3: $\mathbf{F} = 4x\mathbf{i} + xy\mathbf{j} + 6x\mathbf{k}$, $\mathbf{n} = \mathbf{k}$ and $\iint_{S_3} \mathbf{F} \cdot d\mathbf{S} = \iint_{S_3} 6x\, dS = 24$;

S_4: $\mathbf{F} = \mathbf{0}$, $\iint_{S_4} \mathbf{F} \cdot d\mathbf{S} = \mathbf{0}$;

S_5: $\mathbf{F} = 4x\mathbf{i} + 3xz\mathbf{k}$, $\mathbf{n} = -\mathbf{j}$ and $\iint_{S_5} \mathbf{F} \cdot d\mathbf{S} = \iint_{S_5} 0\, dS = 0$;

S_6: $\mathbf{F} = 4x\mathbf{i} + xy\mathbf{j}$, $\mathbf{n} = -\mathbf{k}$ and $\iint_{S_6} \mathbf{F} \cdot d\mathbf{S} = \iint_{S_6} 0\, dS = 0$.

Thus $\iint_S \mathbf{F} \cdot d\mathbf{S} = 64$.