

SUPPLEMENTAL TABLES

	FIB-SEM+ HotKnife	SBEM	ATUM+ MultiSEM	TEMCA2+AL	TEMCA-GT
x,y resolution (nm)	8	9	4	4	4
z resolution (nm)	8	20	30	40	40
raw imaging rate (Mpixels/s)	8	10	250	50	43
effective imaging rate (Mpixels/s)	5.5	5.9	130	6	26
microscope cost (each)	\$1M	\$1M	\$4-6M	\$1M	\$300k
Imaging a cortical column on one microscope (1×.5×.5 mm³)					
Typical <i>effective</i> cutting rate (sections/days)	in effective imaging rate	in effective imaging rate	4000	600	4000
Number of sections	125000	25000	16667	12500	12500
Time to section (days)	n/a	n/a	4	21	3
Pixels/section	3.91×10 ⁹	6.17×10 ⁹	3.13×10 ¹⁰	3.13×10 ¹⁰	3.13×10 ¹⁰
Effective time to image (days)	1028	303	46	768	174

Table S1 (Related to Figure 1). Throughput and cost comparison of EM connectomics approaches. Based on published datasets: focused ion beam milling SEM (FIB-SEM) resolution range: x,y,z: 5–8nm (Knott et al., 2008; Xu et al., 2017), serial block-face SEM (SBEM): resolution ranges x,y: 9–16nm, z: 20–30nm (Briggman et al., 2011; Kornfeld et al., 2017; Schmidt et al., 2017). Rates from personal communications with: C.S. Xu and K. Hayworth for FIB-SEM+HotKnife (Xu et al, 2020; Hayworth et al., 2015); R. Schalek for ATUM with multi-beam SEM (ATUM+MultiSEM); and C. Robinson for TEMCA2-AutoLoader (Zheng et al., 2018). Effective imaging rate is defined as the dataset size divided by calendar days from start to end of imaging, including overhead time such as stage movement, microscope downtime, and maintenance.

JEOL 1200EX TEM	\$ 150,000
GridTape stage	\$ 50,000
Cameras (4)	\$ 65,000
Camera lenses (4)	\$ 4,800
Computers (5)	\$ 12,500
Vacuum parts	\$ 5,000
Leaded glass	\$ 5,000
Scaffolding	\$ 5,000
Total	\$ 297,300

Table S2 (Related to Figure 1). TEMCA-GT cost in current US\$.