

Amortization of Purchased Intangible Assets

The following table presents the amortization of purchased intangible assets (in millions):

Years Ended	July 27, 2019	July 28, 2018	July 29, 2017
Amortization of purchased intangible assets:			
Cost of sales	\$ 624	\$ 640	\$ 556
Operating expenses			
Amortization of purchased intangible assets	150	221	259
Restructuring and other charges	—	—	38
Total	<u>\$ 774</u>	<u>\$ 861</u>	<u>\$ 853</u>

The decrease in amortization of purchased intangible assets was due largely to the purchased intangible assets related to the divestiture of SPVSS business on October 28, 2018, partially offset by amortization from our recent acquisitions.

Restructuring and Other Charges

The following table presents the restructuring and other charges (in millions):

Years Ended	July 27, 2019	July 28, 2018	July 29, 2017
Restructuring and other charges included in operating expenses	\$ 322	\$ 358	\$ 756

We initiated a restructuring plan during fiscal 2018 in order to realign our organization and enable further investment in key priority areas, with estimated pretax charges of \$600 million. In connection with this restructuring plan, we incurred charges of \$322 million during fiscal 2019, and have incurred cumulative charges of \$430 million. We expect this restructuring plan to be substantially completed in the first half of fiscal 2020.

These charges were primarily cash-based and consisted of employee severance and other one-time termination benefits, and other associated costs. We expect to reinvest substantially all of the cost savings from these restructuring actions in our key priority areas. As a result, the overall cost savings from these restructuring actions are not expected to be material for future periods.

Operating Income

The following table presents our operating income and our operating income as a percentage of revenue (in millions, except percentages):

Years Ended	July 27, 2019	July 28, 2018	July 29, 2017
Operating income	\$ 14,219	\$ 12,309	\$ 11,973
Operating income as a percentage of revenue	27.4%	25.0%	24.9%

Operating income increased by 16%, and as a percentage of revenue operating income increased by 2.4 percentage points. These increases resulted primarily from: a revenue increase, a gross margin percentage increase, a benefit from the \$400 million litigation settlement with Arista in the first quarter of fiscal 2019, and lower restructuring and other charges.